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METEOROLOGICAL ABSTRACTS AND BIBLIOGRAPHY

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***EDITORIAL OFFICE:** Washington, D. C. **P.O. ADDRESS:** Box 1736, Washington 13, D. C. Telephone: REpublic 6278.

ADMINISTRATIVE OFFICE: American Meteorological Society, Office of Executive Secretary, 3 Joy Street, Boston 8, Mass.

* Address all business communications, orders and inquiries to the Executive Secretary, Mr. Kenneth C. Spengler, 3 Joy Street, Boston 8, Mass. Exchanges and reprints may be sent direct to P. O. Box 1736, Washington 13, D. C.

METEOROLOGICAL ABSTRACTS AND BIBLIOGRAPHY is a monthly publication devoted to:

A. Current Abstracts in English on important meteorological literature in every language.

B. Bibliographic references to other items of interest to the profession.

C. Selective, annotated bibliographies on subjects of immediate and special interest to meteorologists.

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METEOROLOGICAL ABSTRACTS AND BIBLIOGRAPHY

MALCOLM RIGBY, Editor

Vol. 2 JULY 1951 No. 7

SPECIAL FEATURE IN THIS ISSUE

A Selective Annotated Bibliography on Special Winds

(For complete table of contents see back cover)

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ADVANCES IN METEOROLOGY (APRIL–JUNE 1951)

The number of meteorological papers issued each year is now so great that even reading through all the abstracts each month is almost a major operation. The Editor, therefore, proposes to try the experiment, every three months, of selecting a few recent items which present some points of special interest. This does not imply that the items selected are all necessarily the most important. The following notes cover items published in 1950 and 1951 and included in the issues for April, May and June 1951.

Under **General Meteorology** we note the appearance of two new journals (2.6–13, 163), the Centenary Number of the Royal Meteorological Society's Quarterly Journal (2.6–2), two important bibliographies (S. Africa, 2.5–5; Applied mechanics 2.6–4), and housing in the tropics (2.5–11). **Instruments** include Smithsonian pyrheliometry (2.4–16 to 18), sunshine recorders (2.5–29), micrometeorology (2.5–31) and a general review (2.5–28). Among the numerous works on **Forecasting** we have Tropical Atlantic (2.4–27), fog (2.5–37, 38), statistical methods (2.4–28, 29), analogy (2.5–40) and advances in India (2.6–29).

Physics of the Atmosphere includes proposals for nomenclature (2.6–40, 41), chemistry of water vapor (2.4–46, 47), CO_2 (2.6–37), methods of analysis (2.5–61), the general subject of aerosols (2.5–48), vortices (2.5–63) and a number of papers on radio transmission and the ionosphere, e.g., 2.4–67, 2.5–52, 2.6–45. In the active subject of the **General Circulation** we may mention 2.5–67, 69, 70, 72; 2.6–48, 52, 53, and under **Atmospheric Disturbances** some work on friction and vertical currents (2.5–76), fronts (2.5–86, 87), the effect of disturbances on sea level (2.4–77, 116) and typhoons (2.4–83, 84; 2.6–57, 58).

Radiation includes ultraviolet (2.4–93) and a general review (2.6–63); **Temperature,** predicting night minima (2.4–103) and variations of upper air temperature (2.6–72). For **Wind** we may mention turbulence (2.4–110), the Pacific Trades (2.4–113), the Föhn in Italy (2.5–113), a study of squalls in Peshawar (2.4–112) and upper winds in India (2.6–88). The various aspects of **Water Vapor** have a variety of important entries; we may mention evaporation from snow surfaces (2.5–119), from soil in India (2.4–121, 122), cloud physics and droplet sizes (2.5–125, 2.6–93, 94) and icing (2.5–136). The mechanism of **Precipitation** is discussed in 2.5–141 and various aspects of its distribution and variations in 2.4–128 (Indonesia), 2.4–130 (Peshawar), 2.5–144, 145, 147, 151 (Hawaii, Alps, Baltic coast, Japan), and diurnal variation in U.S.A. (2.6–106). The effect of snow cover on local weather is considered in 2.4–148. Under **Hydrometry,** run-off is discussed in 2.4–153 to 155 and 2.6–115, 117; flood control in 2.5–162.

Climatology has a large number of entries, of which we may mention Kazakhstan (2.4–158, 159) and thermal studies in S. America (2.5–177). The growing literature of **Microclimatology** is represented by 2.4–168 (radiative heat exchange), 2.4–171 (soil climatology) and a number of local studies in the United States (2.5–181, 182; 2.6–130, 131). A general discussion of forests and water supply is in 2.4–187 and **Synoptic Climatology** is represented by 2.4–190 (Austria) and 2.4–191 (British Isles).

New ideas on measurement of **Visibility** are put forward in 2.5–191. Finally, under **Atmospheric Electricity** we may mention the conductivity of the lower atmosphere (2.4–197) and electric charges on rain (2.5–200; 2.6–150).

FOREWORD

Meteorological Abstracts and Bibliography is a monthly publication whose purpose is to bring to the attention of meteorologists current literature in their field and in related fields and to provide bibliographic information on various subjects, as interest demands.

Part I contains from 100 to 200 abstracts of current periodical literature and monographs in the fields of meteorology, hydrology, oceanography, etc. These abstracts are arranged according to the Universal Decimal Classification.

Part II of each issue comprises a special annotated bibliography of from 50 to 250 important references on a special subject without respect to recency of material. No attempt is made to prepare exhaustive bibliographies; instead, the aim is to include a representative cross section of the various aspects of a subject. Preference is given to recent material, comprehensive works, material from obscure sources, and items with good bibliographies.

Vol. 1, No. 1–11, Jan.–Nov. 1950 carried the following bibliographies: *Atmospheric Pollution, Aerobiology, Cloud Physics and "Rainmaking," Hail, Tornadoes, Volcanic Dust, Climatic Changes, Thunderstorms, Icing, Acoustical Propagation* and *Evaporation.*

Bibliographies published this year were:

1. **Extended Forecasting,** Vol. 2, No. 1, Jan. 1951.
2. **Long Range Forecasting,** Vol. 2, No. 2, Feb. 1951.
3. **Soil Temperature,** Vol. 2, No. 3, March 1951.
4. **Constants, Units, Tables and Diagrams,** Vol. 2, No. 4, April 1951.
5. **Climate of the Near East,** Vol. 2, No. 5, May 1951.
6. **Climate of the Middle East,** Vol. 2, No. 6, June 1951.
7. **Special Winds,** Vol. 2, No. 7, July 1951.

Forthcoming bibliographies will be:

8. **Radar Storm Detection,** Vol. 2, No. 8, Aug. 1951.
9. **Condensation Trails,** Vol. 2, No. 9, Sept. 1951.

Other bibliographies in preparation are: *Carbon Dioxide in the Atmosphere, Climate and Cancer, Climate of Northeast Africa, Climate of Northwest Africa, Climate of South America: I. Río de la Plata Area, Dew, Machine Methods in Meteorology, Microwave Transmission, Mountain Meteorology, Objective Forecasting, Oceanographic Meteorology* and *Turbulence.*

Part III contains a listing of the contents of those journals which are primarily meteorological. These are published in the earliest issue where space permits.

Part IV is made up of author, subject and geographical indexes. In the June and December issues cumulative indexes are published.

EXPLANATIONS

Location of material: For each entry, a symbol is given for at least one library where the material may be found. The Union List of Serials (Gregory) is the source of most of the symbols used. In some cases, where no symbol has been assigned to a library, one will be devised according to the principles of the Union List.

Library symbols used in this issue may be found in the following list:

DA:	U. S. Dept. of Agriculture Library, Washington, D. C.
DGS:	U. S. Geological Survey Library, Washington, D. C.
DLC:	Library of Congress, Washington, D. C.
DPL:	U. S. Dept. of Defense (Pentagon) Library, Washington, D. C.
DSI:	Smithsonian Institution Library, Washington, D. C.
DWB:	U. S. Weather Bureau Library, Washington, D. C.
MH-BH:	Harvard University, Blue Hill Observatory (and American Meteorological Society) Library, Milton, Mass.

Other symbols:

*	before an entry indicates a good data source.
†	before an entry indicates a good bibliography.
§	before an entry indicates a synoptic case history study accompanied by charts.

Geographic locations are in the English form rather than the form used locally, for example, Moscow for Moskva.

Titles of articles or monographs are in the language of the original article unless otherwise stated. Slavic (Cyrillic) titles are transliterated into the Roman alphabet according to the Library of Congress transliteration scheme.

Abbreviations:

Titles of periodicals are not abbreviated, as a rule.

The months of the year from March to July are not abbreviated. Other months are abbreviated as Jan., Feb., Aug., Sept., Oct., Nov., and Dec.

The word or abbreviation for Volume (Tom, Band, Jahrgang, Año, etc.), for Number (Heft, Fascicule, Vypusk, etc.) and for page or pages is omitted from most entries. Thus an entry will read as follows:

Meteorologische Rundschau, 2(5–6):146–151, May–June 1950.

This indicates that the article appeared in *Meteorologische Rundschau*, *Jahrgang* 2 (Vol. 2), *Heft* 5–6 (No. 5 and 6), *pages* 146–151, May–June 1950.

PART I. ABSTRACTS OF CURRENT METEOROLOGICAL MATERIAL

GENERAL METEOROLOGY

2.7–1 551.5:06

Regional Commission III (South America). Regional Commission IV (North and Central America), abridged final report, 2nd session at Toronto, Canada, from 8th to 13th September 1947. *Organisation Météorologique Internationale, Publication* No. 70, **1949.** 44 p. In English and French. **DWB**—This report includes 15 resolutions adopted one by each Commission separately, and 13 jointly, all given in both English and French. The principal measures adopted concern the interchange of synoptic reports, frontal and isobaric analyses and forecasts between both continents; unification of terminology and units of measure; establishment of sferics, rarep, radiosonde and rawin networks; intensification of observations on board ships and the centralization and dissemination of such messages; establishment of meteorological reconnaissance flights; increase in climatological, agro-meteorological and hydrological meteorological studies and application of procedures adopted by ICAO in the field of meteorology. A list of members of the two commissions and those present at the Toronto meeting are given. *Subject Headings:* **I.M.O. Publications, Toronto Conference of 1947.**—*G.C.B.*

2.7–2 551.5:06(44)

Viaut, André, **La météorologie en France de 1939 à 1948.** [Meteorology in France from 1939 to 1948.] France, Météorologie Nationale, Aug. **1948.** 6 p. Mimeographed. **DWB**—A brief summary of advances in science and techniques in France during the war years, in the following fields: climatology, forecasting (short and extended); communications and networks; theoretical studies on dynamics of the atmosphere, turbulent exchange and vertical motions, and cloud physics; experimental studies on artificial rainfall, radio meteorology; icing and micrometeorology; cosmic ray and spectrograph measurements of the ionosphere; instrument development, use of punch cards, etc. *Subject Headings:* **Meteorological services, Progress in meteorology, France.**—*M.R.*

2.7–3 551.5:2

Sansom, H. W., **Meteorology in the Bible.** *Weather*, 6(2):51–54, Feb. **1951.** 25 refs. **DWB**—Brief account of references to abnormal weather (e.g. hail), weather miracles and portents, with meteorological comments. *Subject Headings:* **Meteorology, Weather lore.**

2.7–4 551.5:92

Gold, E. and Peters, S. P., **Mr. C. J. P. Cave, M.A., J.P.** *Meteorological Magazine*, London, 80(944):33–35, Feb. **1951.** photo. **DWB**—Cap. Cave, former President of the Royal Meteorological Society and well-known for his pioneer work on upper winds, died Dec. 8, 1950, aged 79. *Subject Headings:* **C. J. P. Cave, Biography.**

2.7–5 551.5:92

Kleinschmidt, Ernst, **Reinhard Süring. Ein Nachruf.** [Obituary.] *Annalen der Meteorologie*, 3(11–12):368–370, **1950. MH-BH**—A good account of his life and work, especially on upper air investigation. *Subject Headings:* **Biography, Reinhard Süring.**—*C.E.P.B.*

2.7–6 551.5:92

Mr. Ralph Sydney Read, I.S.O., M.A., B.Sc., A.R.C.S., F. Inst. P. *Meteorological Magazine*, London, 80(943):28–29, Jan. **1951. DWB**—Retired Dec. 4, 1950. Account of his 31-year service in the Meteorological Office. *Subject Headings:* **Biography, Ralph Sydney Read.**

2.7–7 551.5:92

Watson-Watt, Sir Robert, **Oliver Heaviside: 1850–1925.** *Scientific Monthly*, 61(6):353–358, Dec. **1950.** photos. **DLC**—A biographical sketch describing and evaluating his scientific achievements. A photographic reproduction of a painting of OLIVER HEAVISIDE is included. *Subject Headings:* **Biography, Oliver Heaviside.**—*I.L.D.*

2.7–8 551.5:519.272

*Berényi, Dénes, **További vizsálatok az időjárás elemek közötti kapcsolatokkal.** [Additional investigation on the correlation of meteorological elements.] *Időjárás*, 53(11–12):348–354, Nov.–Dec. **1949.** 7 tables, 6 refs., equations. French summary p. 405. **MH-BH**—Chapters IV–VII of an article on the theory and practice of correlating pressure, temperature, etc. between various months or various years, where long series of records exist. Examples are given from records at Budapest, Stockholm, Berlin, Moscow, Vienna, Paris, etc. *Subject Heading:* **Correlations.**—*M.R.*

2.7–9 551.5:551.46:92

Hawthorne, Hildegarde, **Matthew Fontaine Maury; trail maker of the seas.** New York, Longmans, Green, **1943.** 226 p. **DLC**—A very readable account of the life of one of the pioneers in "global" meteorology. MAURY was for several years head of the Naval Observatory in Washington, prepared the first wind and current chart of an ocean area based on observations from hundreds of vessels, outlined the plan for international cooperation in making and compiling ship observations (Brussels 1853), wrote a book on the geography of the sea and invented an electric torpedo. Besides, he was one of the most farsighted naval officers of any country, received great international acclaim and finally, wound up in the "doghouse" because his loyalty was divided between the Union and his native state of Virginia. *Subject Headings:* **Marine meteorology, Biography, Matthew Fontaine Maury.**—*M.R.*

2.7–10 551.5:629.13:016

†**Index of NACA Technical Publications, 1915–1949.** Washington, D. C., U. S. NACA, **1949.** 605 p. **MH-BH**—Section 6 (meteorology) contains sub-sections on atmosphere, standard atmosphere, atmospheric gusts, turbulence, atmospheric electricity (including lightning) and ice formation, totaling about 200 items in all. This edition not only includes material published between 1947 and 1949 (Sept.) that was not in the 1947 edition of the Index, but also contains many items which were omitted from the 1947 edition. There is an alphabetical subject index at the end. *Subject Headings:* **Bibliographies, Aeronautics, U. S. NACA Publications.**—*M.R.*

2.7–11 551.5:63(05)

Rivista di Ecologia, Osservatorio Meteorologico, Universita di Perugia. Perugia, Italy. Directors: ANDROKLI BALTADORI and VITTORIO MARCHI. Bimonthly: Vol. 1, No. 1, **1950.** Price, Italy, 2000 L. Foreign, 4000 L. Size 24½×17½. **DWB**—A new journal devoted to scientific ecology (agricultural meteorology and climatology). The first few issues have included several important statistical studies on the relation between meteorological factors and crop yield. Besides these papers there are reviews, personalia, notices and 80 or 100 abstracts of papers in bioclimatology and ecology. *Subject Headings:* **Periodicals, Agricultural meteorology, Ecology.**—*M.R.*

2.7–12 551.5:633.1

†*Di Prima, Salvatore, **Alcune relazioni tra pioggia temperatura e procuzioni in quattro razze di frumento coltivate per un ventennio a Bari.** [Some relations between rain, temperature and yield in four varieties of wheat cultivated for a period of twenty years in Bari.] *Rivista di Ecologia*, 1(3–4):144–192, **1950.** 3 figs., tables, 22 refs., equations. English summary p. 184. **DWB**—Meteorological and crop (yield of grain and straw for four varieties of wheat) data collected at the Bari experiment station (S.E. Italy) over a period of 20 years (1924–1943) under uniform conditions of fertilizing and cultivation are presented in tables and correlated in many ways: 1) rain vs. mean temperature (for various months); 2) rainfall vs. rainy days; 3) crop yield vs. rainfall; 4) crop yield vs. extreme maximum temperature; 5) vs.

extreme minimum; 6) vs. rainfall and mean temperature combined. Forecasts are made for each year (1924–1943) based on correlations which are not significant (mean temperature March and April), and these are compared with actual yield. *Subject Headings:* **Crop yield, Agricultural meteorology, Grain crops, Bari, Italy.**—*M.R.*

2.7–13 551.5:635

Bider, M., **Versuch einer frühzeitigen Prognose des Kirschenertrages.** [Attempt at an early forecast of the cherry harvest.] *Schweizerische Zeitschrift für Obst- und Weinbau in Wädenswil*, **1946.** p. 9–19. 3 figs., 3 tables, 2 refs. Reprint available. **MH-BH**—An examination of the correlation coefficients between weather and cherry yields in Switzerland indicates that warm, dry and sunny late summer and early fall months, cold dry and cloudy winter months and dry, warm and sunny April and May are followed always by high cherry yields. The author presents a series of empirical equations in which yield is a function of precipitation, temperature and duration of sunshine, which enable a reliable calculation of the cherry harvest, provided that frost did not occur during blossoming, excessive rainfall during harvesting, etc. Some of the equations are: $E_1 = 4.7 - 0.128(N_1 - 99)$, where E_1 = yield, N_1 = number of days with rainfall >0.1 mm.; $E_2 = 4.7 - 0.088(N_2 - T + S - 118.0)$, where N_2 = number of days in Aug., Sept., Oct., Dec. and Jan. in which precipitation >0.1 mm. and sum of rain days in April and May >0.1 and 1.0 mm., T = temperature of August minus that of June and S = duration of sunshine (hours/10) in November and December. On the basis of meteorological data available at the end of January it was possible to calculate yields that were within 15 percent of the actual yields. *Subject Headings:* **Agricultural meteorology, Phenology, Crop yield forecasting.**—*I.L.D.*

2.7–14 551.5:91(03)

Fischer, Eric and Elliott, Francis E., **A German and English glossary of geographical terms.** New York, American Geographical Society, **1950.** 111 p. (American Geographical Society, Library Ser. No. 5.) **MH-BH**—The need for a good German-English dictionary of technical terms used in geography and including those used in meteorology, oceanography, geology and related fields, led to the compilation of this glossary of about 2500 German-English terms, and 2000 English-German terms. *Subject Headings:* **Geography, Glossaries, German language.**—*M.R.*

METEOROLOGICAL OBSERVATIONS AND INSTRUMENTS

METHODS OF OBSERVATION

2.7–15 551.501.3

Franco, Bruno, **Trascrizione del gruppo ($9S_pS_pS_pS_p$) sulle carte del tempo.** [Transcription of the group ($9S_pS_pS_pS_p$) onto weather charts.] *Rivista di Meteorologia Aeronautica*, 10(2):36–38, April–June **1950.** symbols. **MH-BH**—Detailed discussion and chart to use in decoding the "9" (special phenomena) group as defined in the 1949 code from synoptic transmissions on to surface charts. *Subject Headings:* **Synoptic codes, Special phenomena.**—*M.R.*

2.7–16 551.5:37

Aujeszky, László, **Az időjárás megfigyeltetése az iskolai oktatásban.** [Weather observations in high school education.] *Időjárás*, 54(3–4):104–107, March–April **1950.** In Hungarian. **MH-BH**—A long description of the meteorological training given in the Hungarian high schools, with emphasis on mathematical, historical, mechanical and cartographical training and on observational or field work. *Subject Headings:* **Meteorology, Teaching of meteorology.**—*M.R.*

2.7–17 551.501.4:551.524(4)

Hoffmeister, J., **Das Tagesmittel der Temperatur aus den Terminbeobachtungen um 1^h, 7^h, 13^h, 19^h.** [The daily mean temperature from fixed observations at 1, 7, 13, 19h.] *Zeitschrift für Meteorologie*, 4(9):269–274, Sept. **1950.** 2 tables, ref. **MH-BH**—An extensive table gives for 29 places in Europe mean monthly differences from true daily mean W of: I,

(1+7+13+19)/4 and II, (7+14+21+21)/4. I-W is mostly less than ±0.1°C., II-W mostly larger and positive. Another table gives II-I, nearly all positive. *Subject Headings:* **Computation tables, Temperature observations, Europe.**—*C.E.P.B.*

2.7–18 551.501.6:06:526.8

Commission on Projections for Meteorological Charts, abridged final report, 2nd session at Toronto, Canada, from 24th to 30th August 1947. *Organisation Météorologique Internationale, Publication* No. 60, **1949.** 21 p. In English and French. **DWB**—The Commission recommended: 1) that, for synoptic meteorology, a stereographic projection be used for the polar regions, Lambert conformal for the middle latitudes, and Mercator's for the equatorial regions; 2) that certain scales be used and indicated on the map which is to be printed in brown and blue, or brown only; and 3) that the Commission be discontinued. The resolutions are stated in both English and French. A summary of the minutes of the session and a list of members is also given. *Subject Headings:* **I.M.O. Publications, Toronto Conference of 1947, Projections for meteorological charts.**—*G.C.B.*

2.7–19 551.501.6(26)

Kirk, T. H., **A systematic smoothing technique useful in the construction of marine climatological charts.** *Meteorological Magazine*, London, 80(944):46–48, Feb. **1951.** equation. **DWB**—The procedure recommended is to represent e.g., temperature observations by mean and first two harmonics of year, plot the parameters for different squares and draw smooth isolines. From values read off these a series of consistent maps can be drawn. *Subject Headings:* **Methods of presentation, Marine Meteorological data.**

2.7–20 551.501.7

Germany. Meteorologisches Amt für Nordwestdeutschland, **Das Tephigrammpapier.** [Tephigram paper.] Hamburg, **1950.** 8 p. 8 figs., 3 fold. charts. **MH-BH**—The construction of the tephigram is described and its advantages over other aerological diagrams in practical meteorological work are discussed. Stable and unstable stratification, the relationship among dewpoint, relative and specific humidity, level of condensation and the determination of wet bulb temperature are illustrated on the tephigram paper. The use of the tephigram for determining the formation of convective clouds, the maximum temperature attainable during the day and the conditions for the dissipation of ground and high fog is demonstrated. Actual examples of these phenomena, observed at Hannover, are compared with results predicted from temperature data with the aid of the tephigram. *Subject Headings:* **Aerological diagrams, Tephigrams.**—*I.L.D.*

2.7–21 551.501.81(02)

U. S. Air Weather Service, **RAREPS.** *U. S. Air Weather Service Manual* 105–28, Feb. **1951.** 10+p. 7 tables. **DWB**—The most recent manual of instructions for reporting by code the data obtained from radar observations of storms and movements of echo patterns, if any. *Subject Headings:* **Radar storm detection, Synoptic codes, Manuals.**—*M.R.*

2.7–22 551.501.9:551.525.4

Whiten, A. J., **Exposure of earth thermometers.** *Meteorological Magazine*, London, 80(944):48–50, Feb. **1951.** 2 photos. **DWB**—Two pairs of 1 ft. and 4 ft. earth thermometers were exposed, one in ordinary steel tubes and one in brass cells reached by rubber tubes, with a rubber collar to prevent convection. In hot weather the thermometers in steel tubes read higher by up to 1.7°F. Errors of 0.2°F. were caused in winter by rain seeping into the brass cells, even at 4 ft. *Subject Headings:* **Instrument exposure, Soil temperatures.**

OBSERVATIONAL DATA

2.7–23 551.506:551.576.3(52)

*Nakamura, Saemon Taro, **Some meteorological statistics. (Part I). Cloudy and fine days means.** *Tohoku University, Science Reports, 5th Ser., Geophysics*, 2(2):107–138, Aug. **1950.** 20 figs., 48 tables, equations. In English. **MH-BH**—Tables give diurnal and annual

variation of fine days and cloudy days at Mukaiyama, Japan (1922–1930) and on each type of day, variations of cloud amount and form, air temperature, soil surface temperature, relative humidity, vapor pressure, evaporation, sunshine, wind velocity and direction. The results are shown graphically and analyzed harmonically. *Subject Headings:* **Sunshine data, Diurnal variations, Cloudiness, Japan.**—*C.E.P.B.*

2.7–24 551.506.1(46)

*Campo Cunchillos, G., **Fenómenos especiales, transparencia de la atmósfera, nubosidad e historial meteorológico en el Observatorio Fabra, durante el año 1947.** [Special phenomena, atmospheric transparency, cloudiness and historical meteorology at Fabra Observatory during 1947.] (*R.*) *Academia de Ciencias y Artes de Barcelona, Sección Meteorológica y Sismica del Observatorio Fabra, Bulletin*, No. 36:53–71, **1949.** all tables. **MH-BH**—Tables of monthly frequencies of special phenomena (including snow, hail, rime, fog, thunderstorms, haze and optical phenomena), daily observations of visibility in various directions, and daily log of cloud amount and types and of special phenomena. (Published annually.) *Subject Headings:* **Observational data, Spain.**—*R.S.Q.*

2.7–25 551.506.1(46)

*Granada, Observatorio de Cartuja, Boletin Mensual, **Observaciones meteorológicas, Jan.–June 1948.** [Meteorological observations Jan.–June 1948.] Granada, **1950.** 81 p. all tables. **DWB**—Contains: hourly pressures, temperatures, humidities, wind direction and velocity, clouds and cloud amount; also, hydrometeors, soil temperatures (25 cm., 50 cm. and 150 cm.), evaporation, insolation, etc., for each day. *Subject Headings:* **Observational data, Granada, Spain.**—*M.R.*

2.7–26 551.506.1(497.1)

*Yugoslavia. Hidrometeorološka Služba Narodne Republike Hrvatske, **Visinskog Meteorološkog Opservatorija Sljeme, godišnji izvještaj 1949.** [Sljeme, Mountain Meteorological Observatory, Annual report 1949.] Zagreb, **1950.** tables (Croatian and English headings). **DWB**—Tables of pressure, temperature, vapor pressure, relative humidity, cloudiness, sunshine, wind, precipitation, snow and hydrometeors for 3 times a day for each month, and an annual summary including frequency of various elements are included. Hourly values of pressure, temperature, relative humidity, sunshine and rain are also given. *Subject Headings:* **Observational data, Mountain meteorology, Yugoslavia.**—*M.R.*

2.7–27 551.506.2(436)

Morawetz, Sieghard, **Der heisse Sommer 1950 in Graz.** [The hot summer of 1950 in Graz.] *Zeitschrift für Meteorologie*, 5(2):59–60, Feb. **1951. MH-BH**—A brief account of spells of heat and weather (calms predominated). Since 1864, all 10 hottest summers were after 1900 and 8 after 1925. *Subject Headings:* **Hot summers, Graz, Austria.**—*C.E.P.B.*

2.7–28 551.506.7(519)

*Japan. Central Meteorological Observatory, Tokyo, **Aerological data of Korea, 1942, 1943 and 1944.** Tokyo, July **1950.** 3 Vol. 36, 48 and 45 p. In English. **DSI**—Daily free air pressure, temperature and humidity data for standard levels up to 15 km. for each month from Jan. 1942 through Dec. 1944 and wind aloft data for 1943 and 1944 are presented in tabular form for the one station—Inchon, Korea. *Subject Headings:* **Upper air data, Radiosonde data, Inchon, Korea.**—*M.R.*

2.7–29 551.506.7(518)

*Japan. Central Meteorological Observatory, Tokyo, **Aerological data of Manchuria (radiosonde) 1944.** Tokyo, **1950.** 175 p. all tables. **DSI**—Daily and summarized pressure, temperature and humidity data for levels up to 21 km. and height of tropopause on each day presented in tables for Changchun, Hailaerh, Taonan and Chinchou for each month (January through October) in 1944. *Subject Headings:* **Upper air data, Radiosonde data, Tropopause height, Manchuria.**—*M.R.*

2.7–30 551.506.8(439.1)

Mándy, György, **Orgonafajták virágzásának fenologiai felvétele 1949-ben.** [Phenological survey of different species of *Syringa vulgaris* in the year 1949.] *Időjárás*, 53(11–12):367–374, Nov.–Dec. **1949.** 4 figs., 2 tables, 5 refs. In Hungarian. **MH-BH**—Charts show comparative length of spring vegetative period for 66 species of *Syringa*, as determined from experimental plot (shown in diagram). Data are summarized in a table to show relation of temperature means and extremes to phenological events during period. *Subject Headings:* **Phenology, Hungary.**—*M.R.*

2.7–31 551.506.8(439.1)

Berényi, Dénes, **Megjegyzések as "Orgonafajták virágzásának fonológiai felvétele 1949-ben" cimü dolgozathoz.** [Some remarks on the paper "Phenological survey on different species of *Syringa vulgaris* in the year 1949."] *Időjárás*, 54(3–4):91–95, March–April **1950.** 3 figs. In Hungarian. **MH-BH**—Data are presented in graphical form to show incidence of certain phenological elements in Hungary and in the east and west portions separately. Critical discussion of paper presented in the Nov.–Dec. 1949 issue of *Időjárás* (*see item* 2.7–30 above). *Subject Headings:* **Phenology, Hungary.**—*M.R.*

2.7–32 551.506.8:551.579

Szönyi, László, **Néhány állományalkotó fafajunk vegatációs periódusa és az altalajvíz közötti kapcsolat.** [Connection between the vegetational period of certain trees and the water table level.] *Időjárás*, 54(3–4):96–103, March–April **1950.** fig., 10 tables, 16 refs. In Hungarian. **MH-BH**—Tables and graphs show relation between monthly values of the ground water level (1936, 1937 and 1938) and the growing period of 18 different kinds of deciduous trees during these years. *Subject Headings:* **Bioclimatology, Plant ecology.**—*M.R.*

INSTRUMENTS

2.7–33 551.508(09)

†Spilhaus, Athelstan F., **Progress in meteorological instrumentation, 1920–1950.** *American Meteorological Society, Bulletin*, 31(10):358–364, Dec. **1950.** 44 refs. **MH-BH**—The author reviews briefly the history of meteorological observations in the United States and discusses the development of instrumentation since 1930 for use in airplane meteorological flights, for making upper air measurements, for studying winds aloft and for investigating sferics, radiosonde rocket and radar developments, the automatic ceiling light, automatic weather stations, mobile meteorological stations, problems of oceanic observations and the possibility of the development of a complete meteorological instrument. An extensive bibliography is presented. *Subject Headings:* **Meteorological instruments, History.**—*I.L.D.*

2.7–34 551.508:621

Lacy, R. E., **Electrical instruments.** *Weather*, 6(3):82–85, March **1951.** **DWB**—Account of a joint meeting of Royal Meteorological Society and Institution of Electrical Engineers on Jan. 30 to discuss electrical meteorological instruments. Included anemometers (wind and gust measuring instruments and wind instruments at sea), radar sondes, automatic frost point hygrometer for upper air and meteorological instruments in building research. *Subject Headings:* **Meteorological instruments, Recording equipment.**

2.7–35 551.508.21

Bossy, L. and Pastiels, R., **Étude des propriétés fondamentales des actinomètres.** [Study of the fundamental properties of actinometers.] *Belgium, Institut Royal Météorologique, Mémoires*, Vol. 29, **1948.** 116 p. 28 figs., 12 tables, refs., equations. **MH-BH**—This memoir deals with the geometry of different actinometers and the sensitivity of the receiving surface. Chap. I studies the distribution of energy from a uniform sphere or one with two zones of intensity on a receiving surface shielded by a circular or rectangular diaphragm. The results are applied to the Ångström standard pyrheliometer. Chap. II describes the experimental measurement of the luminous beam on a masked Linke-Feuszner actinometer. Chap. III considers the fundamental measurements in actinometry assuming a

nonuniform receiving surface and regarding the sun and circumsolar sky as a nonuniform emitter. Principles of standardization are discussed with special reference to Linke-Feusznер and silver disc. (*Same item* as No. 1–45 in Jan. 1950 *Meteorological Abstracts.*) *Subject Heading:* **Actinometers.**—*C.E.P.B.*

2.7–36 551.508.21:551.521.13

Wegener, Kurt, **Die Messung der Sonnenstrahlung und der Solarkonstante.** [The measurement of solar radiation and the solar constant.] *Journal of Geophysical Research*, 54(1):53–56, March **1949.** fig. English summary p. 53. **DWB**—The Abbot silver disk pyrheliometer does not (according to the author) measure the true radiation of the sun, but only the difference between the solar radiation and that of the cover to the aperture. As a result, the values of the solar constant would be 0.5 or 26% too low at 6°C., and 0.7°C. or 36% too low at 30°C. Similar errors occur in the Ångström pyrheliometer. (*See also items* 2.7–37 and 2.7–38.) *Subject Headings:* **Solar constant, Instrumental errors, Pyrheliometers.**—*M.R.*

2.7–37 551.508.21:551.521.13

Aldrich, L. B. and Abbot, C. G., **A supposed error in Smithsonian solar constant determinations.** *Journal of Geophysical Research*, 54(4):404–406, Dec. **1949. DWB**—Replying to article by WEGENER (*see item* 2.7–36 above), the writers maintain that the error is not nearly as large as WEGENER claims, since the loss in radiation through the aperture is only that portion of the calculated loss to space from the disk area, which the angle of the aperture is to the total hemisphere, or about .0013 of the total error assumed by WEGENER. Also, the loss is to the atmospheric temperature, not to absolute zero of space. *Subject Headings:* **Solar constant, Instrumental errors, Pyrheliometers.**—*M.R.*

2.7–38 551.508.21:551.521.13

Wegener, Kurt, **"A supposed error in Smithsonian solar constant determinations."** *Geofisica Pura e Applicata*, 16(1–2):16–18, Jan.–March **1950.** In German. **MH-BH**—WEGENER replies to ALDRICH and ABBOT's rebuttal (*see item* 2.7–37 above) to his original (*item* 2.7–36) article on radiation error in Abbot silver disk pyrheliometer (and hence in Smithsonian solar constant). According to the Stefan Boltzmann law, the angular area of the aperture is of no concern as the value being calculated is the *radiation balance* through one and the same aperature. Finally, the fact (which ALDRICH and ABBOT maintain) that the actual annual variations in solar constant are much less than the possible error which WEGENER calculates, is not significant since other factors than temperature mask such variations (e.g., solar distance). *Subject Headings:* **Solar constant, Instrumental errors, Pyrheliometers.**—*M.R.*

2.7–39 551.508.21:551.521.13

Georgi, J., **Reduktion der Strahlungsmessungen auf mittlere Sonnen-Entfernung.** [Reduction of the radiation measurement to the mean solar distance.] *Geofisica Pura e Applicata*, 19(1–2):44–46, Jan.–March **1951.** 4 refs. English summary p. 44. **DLC**—Further remarks on the controversy between K. WEGENER and C. G. ABBOT and ALDRICH (*see items* 2.7–36 to 38) regarding the errors in the Smithsonian solar constant. In certain cases the measured intensities of solar radiation should be reduced for mean solar distance and in other cases not, since there can be a 7% variation from mean due to eccentricity of earth's orbit. Suggests international standards be set up. *Subject Headings:* **Solar constant, Instrumental errors.**—*M.R.*

2.7–40 551.508.7

Swinbank, W. C., **A sensitive vapour pressure recorder.** *Journal of Scientific Instruments*, 28(3):86–89, March **1951.** 3 figs., 6 refs. **DWB**—A very fine thermocouple is used to detect rapid changes in the vapor pressure. Construction and operation of the instrument is described. Under extreme and rapid changes in humidity, accuracy within 0.2°F. was attained (when compared with an Assman wet bulb psychrometer) and 90% of changes were recorded within 0.7 sec. Sample records are shown. Instrument could be used for medical or preservation work as well as to measure the micro-oscillations of humidity in the free air. *Subject Headings:* **Thermocouples, Vapor pressure recorders.**—*M.R.*

2.7–41 551.508.71

Barrett, Earl W. and Herndon, Lee R., Jr., **An improved electronic dew-point hygrometer.** *Journal of Meteorology*, 8(1):40-51, Feb. **1951.** 8 figs., table, 6 refs., 23 equations. **MH-BH**—The basic physical theory of dew point hygrometry is discussed. The operating principles and design of an electronic dew point hygrometer, which is an improvement over the Thornthwaite-Owens apparatus, are described and illustrated with photographs and diagrams. The apparatus utilizes "the photoelectric detection of condensation on a cooled, polished metal mirror combined with a radio-frequency induction heating system and an all-electronic proportional heat control servo system." Continuous automatic measurement of atmospheric water vapor can be made in laboratory and field under diverse temperature conditions with high accuracy and slight lag. *Subject Heading:* **Dew point recorders.**—*I.L.D.*

2.7–42 551.508.71

Rössler, Fritz, **Über die Trägheit von feuchten Thermometern.** [On the lag of wet-bulb thermometers.] *Zeitschrift für Meteorologie*, 4(9):274–284, Sept. **1950.** 6 figs., 6 tables, 14 refs., 23 equations. **MH-BH**—The mathematics of lag of dry and wet bulb thermometers is set out. Their coefficients of inertia are related (for water) by σ_f (wet bulb) $=\sigma$ (dry bulb)$/A$ where $A=1+\frac{1560}{p}\frac{dE}{d\varphi}$, E is v.p. in mm. A depends mainly on temperature. A large number of observations were made to check this, using bare bulb and bulb covered with different types of paper or material (wet and dry) with good results. A brief application is made to radiosonde ascents. *Subject Headings:* **Thermometer lag, Radiosonde errors.**—*C.E.P.B.*

SYNOPTIC ANALYSIS AND FORECASTING

2.7–43 551.509.3:551.577(92)

de Boer, H. J. and Euwe, W., **Forecasting rainfall in the period July–August–September for parts of Celebes and South Borneo.** *Indonesia*, (*K.*) *Magnetisch en Meteorologisch Observatorium te Batavia, Verhandelingen*, No. 36, [**1949**]. 14 p. 6 tables, 5 refs., 23 equations. **MH-BH**—Regression equations for predicting the deviation of the rainfall from its normal value (average rainfall at 12 stations in the years 1911–1940) in the period July–August–September at Miehassa, South Borneo and Southwest Celebes are derived. Precipitation was correlated with the three monthly sums of the deviations from their normal values (1911–1940 inclusive) of air pressure and air temperature of specific stations in or near the subtropical high pressure belts. The equation had a fair degree of reliability. It is suggested that the influence of air pressure in the various centers of action (Koepang, Manila, Mauritius, Honolulu, Apia and Hokitika) is excited through the general circulation and through ocean currents. (*Same item* as No. 2B–214 in Feb. 1951 *Meteorological Abstracts*.) (Similar studies for other seasons or regions of Indonesia are presented in *items* 2.4–34 and 2.4–35 April 1951 of *Meteorological Abstracts*.) *Subject Headings:* **Precipitation forecasting, Long range forecasting, Indonesia.**—*I.L.D.*

2.7–44 551.509.31

Brown, Claude V., **Aids to forecasting Juneau district.** [Juneau, Alaska, U. S. Weather Bureau], Aug. **1950.** 8 leaves. Mimeographed. **DWB**—Describes various synoptic situations, fronts, etc., conditions giving rise to precipitation or fog, peculiarities of wind, temperature effects and practical airways forecasting. *Subject Headings:* **Weather forecasting, Juneau, Alaska.**—*C.E.P.B.*

2.7–45 551.509.31(269)

§Gotley, A. V., **Discussion and use of Antarctic analysis during voyage of "H.M.A.S. Australia" to Heard Island.** *Weather Development and Research Bulletin*, No. 16:32–36, Dec. **1950.** 8 figs., equations. **DWB**—A discussion of the analyzed synoptic charts of sub-Antarctic Ocean, Aug. 2–9, 1950 made on ship and associated weather, using synops from Heard, Marion, and Amsterdam Islands, and ships' own observations. *Subject Headings:* **Weather forecasting, Antarctic Ocean.**—*C.E.P.B.*

2.7–46 551.509.31:551.515.13

Müller-Annen, Hans, **Zur Prognose der Zugbahnen von Tiefdruckgebieten. 1. Teil: Zugbahnen und Geschwindigkeit der Tiefdruckgebiete.** [On the prognosis of tracks of low pressure areas. Pt. 1: Tracks and velocities of low pressure areas.] *Annalen der Meteorologie*, 3(11–12):341–351, **1950.** 10 figs., tables, 7 refs. German and English summaries p. 341. **MH-BH**—Tracks and changes of depth in 550 traveling depressions were examined statistically. They fall into two groups: 1) cyclonically curved tracks turning to left of upper winds (frontal cyclones moving in direction of warm air flow, mean speed 1630 km./day); 2) anticyclonically curved tracks turning to right of upper winds, moving with cold air in rear of cyclone, mean speed 920 km./day. Classification is illustrated by a number of schematic diagrams and rules for forecasting direction and speed of track are given; some are already known empirically. *Subject Headings:* **Cyclone tracks, Cyclone forecasting.**—*C.E.P.B.*

2.7–47 551.509.31(02)

Pulk, E. S. and Murphy, E. A., **Workbook for weather forecasting.** New York, Prentice-Hall, **1950.** 66 p. 16 figs., charts and diagrams (in pocket), table, 25 refs., 5 equations. **MH-BH**—An attractive laboratory manual for students of synoptic analysis who hope someday to become forecasters. The text takes up the latest weather codes and map plotting techniques for surface, upper air and airways charts. The section on analysis emphasizes historical sequence, isobaric, frontal, isallobaric, constant pressure and adiabatic chart analysis. The general principles of synoptic forecasting and preparation of prognostic charts are then discussed and illustrative situations analyzed. *Subject Headings:* **Weather forecasting, Synoptic analysis, Manuals.**—*M.R.*

2.7–48 551.509.312:551.547

Weber, Siegfried, **Die Änderung der relativen Topographie durch Advektion.** [The change of relative topography by advection.] *Meteorologische Rundschau*, 4(1–2):16–20, Jan.–Feb. **1951.** 5 figs., 9 refs., 18 equations. **MH-BH**—Formulas are derived by which the change of relative topography in cases of geostrophic and cyclostrophic motion can be calculated from the prevailing upper wind. Various situations are discussed. *Subject Headings:* **Relative topography, Advection, Differential kinematics.**—*C.E.P.B.*

2.7–49 551.509.317:551.524.7:551.547:519.2(410)

Craddock, J. M., **Advective temperature change in the 1,000–700 mb and 700–500 mb layers.** *Royal Meteorological Society, Quarterly Journal*, 77(331):51–60, Jan. **1951.** 2 figs., 5 tables, 8 refs., 11 equations, append. **MH-BH**—An equation is developed for the advective change of temperature in the troposphere and the advective components 1000–700 and 700–500 mb. are calculated at Downham Market at 6 hr. intervals for 6 winter months. The results were correlated with thickness tendency and gave correlations of +.64 and +.53. On the average, advection in Britain is a warming process. The residual (non-advective) component has smaller correlations with thickness tendency and negative correlations (−.63, −.71) with advective part. The hodograph component (area between wind vectors at p_o and p on a polar diagram) is much more variable and rarely of use for obtaining thickness tendency. An appendix discusses the relative residual variance as a measure of the reliability of estimates. *Subject Headings:* **Weather forecasting, Upper air temperatures, Upper air pressures, Probability theory, Great Britain.**—*C.E.P.B.*

2.7–50 551.509.33

Krick, Irving P., **1951 spring weather, cold or warm?** *American Fruit Grower*, 71(2):18–19, Feb. **1951.** 4 charts. **DWB**—Brief, illustrated article giving a summary of weather anomalies over North America in fall of 1950, and general prediction for March and April 1951. Early wet spring predicted for eastern United States and a late spring in the west. Unusually late frost is predicted for the Northern Rockies, and mild spring weather should protect peach blossoms in the southeast and citrus crops in California. Forecast charts show for each month expected specific dates of last frost, general air flow and dry and wet areas. *Subject Headings:* **Seasonal forecasting, Frost forecasting, United States.**—*M.R.*

2.7–51 551.509.33:551.543

Rodewald, Martin, **Die Verwendung monatlicher Druckanomalie-Änderungskarten zu langfristigen Zirkulationsprognosen (Vorläufige Mitteilung).** [The application of monthly charts of change of pressure anomaly to long range forecasts of circulation (advance communication).] *Annalen der Meteorologie*, 3(11–12):361–367, **1950.** 8 figs., table, 5 refs. German and English summaries p. 361. **MH-BH**—At first sight the frequency distribution of changes of pressure anomaly from one month to next, plotted against anomaly of first month, agrees with that expected by chance and affords no basis for forecasting. But when hemisphere charts of change of pressure anomaly are drawn, centers can be followed from chart to chart along persistent tracks, and author considers that typical tracks could be laid down. Forecasts of pressure anomaly change were tried for six months and five were considerably better than chance. From these the general character of the month could be forecast. (Compare abstract No. 2B–54 in Feb. 1951 *Meteorological Abstracts*.) *Subject Headings:* **General circulation, Pressure variations, Anomalies, Long range forecasting.**—*C.E.P.B.*

2.7–52 551.509.6:517.512.2

Langmuir, Irving, **A seven-day periodicity in weather in United States during April, 1950.** *American Meteorological Society, Bulletin*, 31(10):386–387, Dec. **1950.** 2 tables, 2 equations. **MH-BH**—The author asserts that a seven day periodicity was introduced into the weather in the United States during April 1950 by silver iodide from a ground based generator. Temperature data at 850 mb. level over Chicago during April 2 to April 29, 1950 are analyzed by the Fisher F-test. The odds against the existing 7-day periodicity being the result of chance are two million to one. At the same time, correlation coefficients for temperatures at 850 mb. in excess of +0.5 occurred over an area of 1,300,000 sq. mi. from Oklahoma to Washington, D. C. A specific procedure for evaluating the results of periodic seedings is outlined. *Subject Headings:* **Periodicities, Cloud seeding, Artificial precipitation.**—*I. L.D.*

STRUCTURE AND PHYSICS OF THE ATMOSPHERE

STRUCTURE OF THE ATMOSPHERE—IONOSPHERE

2.7–53 551.510.3(03)

Chapman, Sydney, **Upper atmospheric nomenclature.** *Journal of Atmospheric and Terrestrial Physics*, 1(2):121–124, **1950.** fig., 4 refs. **MH-BH**—A review of origin of older terms such as stratosphere and troposphere (DE BORT), tropopause (SHAW) and ozone layer or ionosphere (WATSON-WATT) and suggestions for new terms or new definitions of terms suggested by FLOHN and PENNDORF. *Subject Headings:* **Upper atmosphere, Definitions.**

2.7–54 551.510.3:551.593.55

Link, F., **Densités de la haute atmosphère d'après les brillances crépusculaires au zenith.** [Densities of the upper atmosphere from crepuscular brilliances at the zenith.] Commission pour l'Étude des Relations entre les Phénomènes Solaires et Terrestres, Sixième rapport, Orléans, France, p. 169–170, **1948. MH-BH**—Calculates the following table:

h, km	50	60	70	80	90	100	120	140	160	180
$-\log \rho$	3.04	3.60	4.17	4.54	4.80	5.04	5.51	5.95	6.36	6.71

Values are relative, including an unknown constant of integration. *Subject Headings:* **Atmospheric density, Twilight.**—*C.E.P.B.*

2.7–55 551.510.42:551.551

Church, Phil E., **Dilution of waste stack gases in the atmosphere.** *Industrial and Engineering Chemistry*, 41(12):2753–2756, Dec. **1949.** fig., 2 tables, 15 refs., equations. Reprint available. **DLC**—Oil smoke was omitted from a pipe at various heights up to 200 ft. and concentration down wind measured, also temperature and wind up to 200 ft. Shape of smoke plumes and maximum concentration expected at ground, discussed with different degrees of stability (i.e. temperature difference, 200–4 ft.) and wind velocities. Average rate of descent of plume 4 ft./sec. in unstable conditions. With neutral stability (only with wind 20 mi./hr.

or more) plume reached ground in 1600–2000 ft. With stable air plume rarely reaches ground under 5 miles. Diurnal variation of stability and relations to dilution discussed. *Subject Headings:* **Atmospheric pollution, Gases.**—*C.E.P.B.*

2.7–56 551.510.42

§Elsley, E. M., **Alberta forest-fire smoke—24 September 1950.** *Weather*, 6(1):22–24, Jan. 1951. fig., 2 photos. **DWB**—Smoke from some 30 forest fires in Alberta spread over parts of Ontario and eastern United States between 12 and 20,000 feet. Track of smoke shown on synoptic chart of 500 mb. level. *Subject Headings:* **Smoke pall—Sept. 1950, Smoke aloft.**

2.7–57 551.510.42

Fletcher, Robert D. and Manos, Nicholas E., **The importance of several meteorological elements in the spreading of smoke.** *American Meteorological Society, Bulletin*, 31(10):365–370, Dec. 1950. 6 figs., 4 refs. **MH-BH**—Various methods of investigating the correlation between smoke pollution in an industrial city and meteorological variables are discussed critically. Visibility is an inaccurate measure of suspensoid concentration but may be used to estimate the upper limits of smoke pollution. The relationship between suspensoid concentration, wind speed, wind direction and between temperature stratification was analyzed statistically using Davidson's New York City smoke data of 1938-1940 and the corresponding New York City Weather Bureau data. The best correlation between smoke pollution and wind data (0.79 and 0.82 for July and January respectively) was attained by using daily hourly data of wind direction and wind speed and the regression equation $C = k - mV$ (C = suspensoid concentration, k = parameter of station location and wind speed, m = a station constant signifying that smoke concentration is inversely proportional to less than first power of wind speed, V = wind speed). Isobaric curvation on weather maps was found to be highly correlated with suspensoid concentration; low smoke concentration was associated with anticyclonic curvature and high concentration with cyclonic curvature. *Subject Headings:* **Atmospheric pollution, Smoke.**—*I.L.D.*

2.7–58 551.510.42

Johnstone, H. F., **Properties and behavior of air contaminants.** *Industrial Medicine and Surgery*, 19(3):107–115, March 1950. table, 19 refs. **DWB**—The chemical and physical properties of gases and aerosols, which act as atmospheric contaminants, are discussed. The following substances are considered: sulfur dioxide, hydrogen sulfide, oxides of nitrogen, ammonia, hydrogen fluoride, hydrogen chloride, organic chlorides, carbon dioxide and monoxide, exhaust gases, peroxides and aerosols. Measures for decontamination are discussed. *Subject Headings:* **Atmospheric pollution, Gases, Aerosols.**—*I.L.D.*

2.7–59 551.510.42:551.5

Willett, H. C., **Meteorology as a factor in air pollution.** *Industrial Medicine and Surgery*, 19(3):116–120, March 1950. **DWB**—The weather aspects of the problem of atmospheric pollution are discussed. The rates of precipitation, air movement, temperature gradient and of fog and smoke in the dispersal or removal of atmospheric pollution; the evaluation of weather as a possible pollution hazard in a particular locality and the prevention of pollution hazards by choice of sites and by use of weather forecasts are discussed. *Subject Headings:* **Atmospheric pollution, Meteorological elements.**—*I.L.D.*

2.7–60 551.510.5(03)

Aujeszky, László, **A légkör függöleges tagozódása egymásfelett következö troposzférákra és sztratoszféráka.** [Structure of the atmosphere considered as a series of subsequent tropospheres and stratospheres.] *Idöjárás*, 54(3–4):74–79, March–April 1950. **MH-BH**—A review of present knowledge of atmospheric structure, with definitions of the troposphere, stratosphere, ozonosphere, second stratosphere (55–70 km.), second troposphere (70–85 km.), third stratosphere (85–90 km.), ionospheric inversion (90–120 km.), etc. Various British, American and German authorities are cited. *Subject Headings:* **Atmospheric structure, Definitions.**—*M.R.*

2.7–61 551.510.535

Appleton, Sir Edward, **Studies of the F_2 layer in the ionosphere.** *Journal of Atmospheric and Terrestrial Physics*, 1(2):106–113, **1950.** 6 figs., tables, 5 refs. **MH-BH**—Seasonal and latitudinal variations in the height at noon of the F2 layer are analyzed and presented in diagrams. Washington, D. C., and Shibata; Trinidad and Huancayo and Wakkanoi, Palau and Christchurch data are compared month by month to show variations at stations in the same latitude in the Northern Hemisphere, at stations the same distance north and south of the equator and at stations in the temperate and tropical zones, respectively. Relations between noon F2 layer height and magnetic dip are compared for over 30 stations in Sept. 1944 (low sunspot activity) and for over 50 stations in Sept. 1948 (high sunspot activity). Change from the Northern Hemisphere type of seasonal variation to the Southern Hemisphere type occur at the magnetic equator not the geographical equator. *Subject Headings:* **Ionospheric variations, F2 layer.**—*M.R.*

2.7–62 551.510.535(54)

Baral, S. S. and Mitra, A. P., **Ionosphere over Calcutta.** *Journal of Atmospheric and Terrestrial Physics*, 1(2):95–105, **1950.** 8 figs., 26 refs., 18 equations. **MH-BH**—Ionospheric records made at Calcutta during the period Jan. 1945 to June 1950 are systematically analyzed and the results presented in diagrams to show variations in rate of electron production, temperature of the ionospheric regions, effective coefficient of recombination and the intensity of the earth's magnetic field in the ionosphere. Theoretical developments are presented for each phase of the subject and calculations given for temperatures of E, F_1 and F_2 layers for summer and winter, respectively. [E layer 190°K. and 220°K. for atomic oxygen, 380°K. and 450°K. for O_2; F_2 layer 700°–1200°K. for high and 500°–900°K. for low solar activity.] *Subject Headings:* **Ionosphere, Calcutta.**—*M.R.*

2.7–63 551.510.535:551.577:621.396.11

Bussey, Howard E., **Microwave attenuation statistics estimated from rainfall and water vapor statistics.** *Institute of Radio Engineers, Proceedings*, 38(7):781–785, July **1950.** 6 figs., 9 refs. **DWB**—Predictions are made from statistical meteorological data of the attenuation of high frequency radio waves (>10,000 Mc) for a 50-km. and a 1 km. path at Washington, D. C. Water vapor, rainfall rate and excessive rainfall data are analyzed and charted for the U.S.A. Limitations of data and applications to other parts of the country discussed. *Subject Headings:* **Microwave transmission, Rainfall intensity, United States.**—*M.R.*

2.7–64 551.510.535

Hon, Yung-sen, **Stratification of the F2-layer of the ionosphere over Singapore.** *Journal of Geophysical Research*, 54(4):363–366, Dec. **1949.** 3 figs. Abstract p. 363. **MH-BH**—Studies of critical frequencies of E and F layers over Singapore show that by day the F2 layer splits into three, with virtual heights roughly 300, 400 and 500 km. (virtual height is based on time of propagation of beam and differs from geometric height). *Subject Headings:* **F2 layer, Singapore.**—*C.E.P.B.*

2.7–65 551.510.535

Lauter, E. A., **Zur Statistik der nächtlichen abnormalen *E*-Schicht.** [On statistics of the abnormal nocturnal E-layer.] *Zeitschrift für Meteorologie*, 4(7–8):234–240, July–Aug. **1950.** 4 figs., 8 refs. **MH-BH**—Sudden increases of ionization in E layer were investigated through the ratio β_E (space wave/ground wave) for 1250 m. Potsdam transmission. Daily values of magnetic disturbance K and β_E are plotted in 27-day periods Nov. 1947–May 1950. Minimum β_E follows 3 days after maximum K. In 14/73 cases no marked absorption followed maximum K but there was a secondary maximum K instead. Five cases are examined specially, including high level radiation. Observations show that ionization must be due to solar corpuscular charged radiation of 200–300 km./sec., penetrating below 100 km. *Subject Headings:* **Ionosphere, Ionization, Potsdam.**—*C.E.P.B.*

2.7–66 551.510.535

Penndorf, Rudolf, **The vertical distribution of atomic oxygen in the upper atmosphere.** *Journal of Geophysical Research*, 54(1):7–38, March **1949.** 10 figs., 8 tables, 29 refs., 24

equations. Abstract p. 7. **DWB**—The photo-chemical dissociation of oxygen in the upper atmosphere and the recombination of the atoms by collision is studied using various values of incoming radiation and rate of recombination covering their probable range. It is found that there is a transition layer of equilibrium with a mean height between 100 and 110 km. and a thickness of about 10 km. Zenith distance of the sun makes little difference and the height and shape of the layer are nearly the same everywhere and by day and night. *Subject Headings:* **Ionosphere, Atomic oxygen.**—*C.E.P.B.*

2.7–67 551.510.535:523.2

Reber, Grote, **Motion in the solar atmosphere as deduced from radio measurements.** *Science*, 113(2934):312–314, March 23, **1951.** table, 10 refs. **DLC**—Disturbances in the variably ionized solar atmosphere generate radio waves of a transient nature, having different frequencies at different levels. These radio frequencies are used to analyze the source of the motions within the solar atmosphere and their velocities during a sudden ionospheric disturbance. *Subject Headings:* **Ionosphere, Solar atmosphere.**—*I.L.D.*

2.7–68 551.510.535

Stranz, Dietrich, **Eng begrenzte Ionisationswolken in 125 km Höhe während einer Nordlichtstörung.** [Isolated ionization clouds at height of 125 km. during an auroral disturbance.] *Archiv der elektrischen Übertragung*, 4:213–216, [**1950**]. 3 figs., table. Reprint available. **MH-BH**—From 22h. on Sept. 15, 1948 to 1h. on 16th at Göteborg 3 MHz waves showed isolated ionization clouds beginning at 200 km. and descending to 125 km. Attributed to a bundle of deflected corpuscular rays. There were pulsations of 3–5 sec. in intensity of echo. This observation raises a number of problems. The magnetic disturbance vector is analyzed. *Subject Headings:* **Ionosphere, Göteborg, Sweden.**—*C.E.P.B.*

2.7–69 551.510.535

White, Gladys R. and Potter, Roy F., **Prediction of ionospheric conditions for antipodal stations.** *American Geophysical Union, Transactions*, 30(5):686–690, Oct. **1949.** 5 figs., table. **MH-BH**—Critical frequencies for F2 layer can be estimated from sunspot numbers by an empirical regression line. By comparing observed and estimated values for two nearby and antipodal stations, Baton Rouge and Watheroo, it is found that these estimates apply also to the antipodal point. *Subject Heading:* **F2 layer.**—*C.E.P.B.*

MECHANICS AND THERMODYNAMICS OF THE ATMOSPHERE

2.7–70 551.511:517.5

Arakawa, H., **Transformation of the motion in dynamical meteorology to orthogonal curvilinear coordinates.** *Papers in Meteorology and Geophysics*, 1(1):45–49, Oct. **1950.** 3 refs., 6 equations. In English. **MH-BH**—The vectorial equations of motion of dynamical meteorology are transformed to three-dimensional coordinates and the results applied to cylindrical and spherical polar coordinates. *Subject Heading:* **Dynamic meteorology.**—*C.E.P.B.*

2.7–71 551.511

Drozdov, O. A., **O nekotorykh osobennostiakh poleĭ meteorologicheskikh elementov (temperatura, davlenie, veter, osadki).** [On some peculiarities of fields of meteorological elements (temperature, pressure, wind, precipitation).] *Leningrad, Glavnaia Geofizicheskaia Observatoriia, Trudy*, 19(81):102–121, **1950.** 7 figs., tables, 26 refs., 31 equations. **DLC**—An attempt to explain quantitatively (by means of the theory of turbulence and chance) the relations between various climatic factors and the succession of such occurrences as drought, heat, cold, snow, storms and anticyclonic invasions. The theoretical aspects are worked out in great detail and the correlation of the elements and intercorrelation of nearby stations shown by means of graphs and scatter diagrams. *Subject Headings:* **Dynamic climatology, U.S.S.R.**—*M.R.*

2.7–72 551.511

Laĭkhtman, D. L., **Nekotorye nestatsionarnye zadachi teorii teploprovodnosti v dinamicheskoĭ meteorologii.** [Some nonstationary problems of the theory of thermo-conductivity in dynamic meteorology.] *Leningrad, Glavnaia Geofizicheskaia Observatoriia, Trudy*, 19(81): 161–174, **1950.** 2 tables, 93 equations. **DLC**—The integral equations are solved and presented in detail for determining from the radiation balance the diurnal or annual regime of temperature, pressure and wind. *Subject Headings:* **Dynamic meteorology, Thermal conductivity.**—*M.R.*

2.7–73 551.511:532.59

Scorer, R. S., **On the stability of stably stratified shearing layers.** *Royal Meteorological Society, Quarterly Journal*, 77(331):76–84, Jan. **1951.** fig., 6 refs., 25 equations. **MH-BH**—Author investigates wave motion in an atmosphere with continuous velocity change and stable stratification by considering a number of discrete layers increased indefinitely. An expression equivalent to Taylor's is derived and simplified, stability being represented by lapse rate of potential temperature. It is shown that if stable waves exist they must be moving relatively to the air at all levels. The conditions for existence of unstable waves are tentatively discussed but the difficulties are great. It is considered that shear and stability play a dominant part in determining whether waves of certain lengths are initially unstable. *Subject Headings:* **Wind shear, Wave motion.**—*C.E.P.B.*

2.7–74 551.511

Stümke, H., **Theorie der Weiterentwicklung von stabilen atmosphärischen Druckfeldern. I. Teil.** [Theory of the further development of stable atmospheric pressure fields. Pt. I.] *Meteorologische Rundschau*, 3(11–12):241–243, Nov.–Dec. **1950.** 21 equations. **MH-BH**—On the assumption that the atmosphere is an oscillating system, the actual condition is replaced by a mean approximating to equilibrium. The density and velocity fields are deduced from the pressure field. Differentiating the mean condition with respect to time gives two equations for the mean tendency of the smoothed field and the vertical velocity which are easier to solve than the usual approximations and which can be integrated by time intervals. *Subject Heading:* **Dynamics of the atmosphere.**—*C.E.P.B.*

2.7–75 551.511

Stümke, H., **Theorie der Weiterentwicklung von stabilen atmosphärischen Druckfeldern. II. und III. Teil.** [Theory of the further development of stable atmospheric pressure fields. Pt. II and III.] *Meteorologische Rundschau*, 4(1–2):7–13, Jan.–Feb. **1951.** fig., 2 refs., 63 equations. **MH-BH**—(For Pt. 1 *see item* 2.7–74 above.) In Pt. 2 the equations for mean tendency of field and vertical velocity are integrated on the assumption that the original pressure distribution can be expressed by an analytical function; short-wave variations are first smoothed out as unimportant. In Pt. 3, by eliminating vertical velocity, a differential equation for pressure tendency is obtained. As an example, the special case is examined of a still frictionless atmosphere heated from above by radiation. *Subject Headings:* **Dynamics of the atmosphere, Differential kinematics.**—*C.E.P.B.*

GENERAL CIRCULATION

2.7–76 551.513 551.557.2(8)

Boffi, Jorge Alberto, **Effect of the Andes Mountains on general circulation over the southern part of South America.** *American Meteorological Society, Bulletin*, 30(7):242–247, Sept. **1949.** 4 figs., 4 refs. **MH-BH**—The effect of the Andes on the circulation over southern South America is shown by stream lines at 1,346 km. from pilot balloon ascents. The loss of absolute vorticity over the Andes is regained by turning the W-wind towards lower latitudes. The same pattern is deduced from cyclone tracks. Cyclones moving NE tend to decrease in intensity, those moving SE to increase. Circulation differs from that over North America. English version of article originally written in Spanish (*see item* No. 2.2–67 in *Meteorological Abstracts*, Feb. 1951.) *Subject Headings:* **Atmospheric circulation, South America.**—*C.E.P.B.*

2.7–77 551.513:525.3

Bossolasco, Mario, **Variazioni del moto polare della terra e loro correlazioni meteorologiche.** [Variations of polar motion of the earth and their meteorological correlations.] *Geofisica Pura e Applicata*, 14(3–4):197–202, April–June **1949.** 2 figs., table, 10 refs. Italian and German summaries p. 197. **MH-BH**—In 1923–1926 there was a discontinuous diminution in the amplitude of the Chandler motion of the pole, which persisted until 1940. To this are attributed changes in atmospheric currents, including pressure difference Genoa-Milan, marked pressure anomalies at Genoa 1924–1932 and wind at Honolulu. A similar polar disturbance in 1862–1863 gave similar results at Genoa. *Subject Headings:* **Atmospheric circulation, Polar orbit.**—*C.E.P.B.*

2.7–78 551.513:551.510.52(98)

Dzerdzeevskiĭ, B. L., **Tsirkuliatsionnye skhemy v troposfere tsentral'noĭ Arktiki.** [Circulation schemes in the troposphere of the central Arctic.] Moscow, Izdatel'stvo Akademii Nauk, SSSR, **1945.** 40 p. 28 figs., 4 tables, 25 refs. **DLC**—This article consists of an attempt to draw conclusions about circulation processes in the central Arctic from data obtained by the drifting station "Severnyĭ Polius" and by recent Soviet polar expeditions. The basic idea of the author is that, contrary to the old notion about uniformity of circulation and weather in the Arctic, this region is subject to variations of circulation and that a diversity of meteorological elements is observed here as elsewhere on the globe. As the material corroborating this new notion has been made available only by the Soviet expeditions, the data presented on tables and in charts are limited to observations of the years 1937–1939, and on basis of these data schemes of atmospheric circulation have been constructed. The conclusions are summarized as follows: 1) the existence and stability of an Arctic front in summer in the central Arctic is proved by climatological data; 2) the existence of the Arctic front in summer necessarily determines the existence of independent Arctic air; 3) the shift in orientation of frontal zones from one season to another explains the increase in summer of the number of cyclones in central areas of the Arctic and the shift in the direction of their movement; 4) very important variations in the orientation of fronts, from the winter half year to the summer half year, unknown in other regions, are explained by the enormous difference in the inflow of solar energy during the polar night and the polar day. Thus, the variations of the Arctic front, as shown above, have a seasonal character. *Subject Headings:* **Atmospheric circulation, Troposphere, Russian Arctic.**—*C.K.*

2.7–79 551.513.1:551.43

Colson, DeVer, **Air flow over a mountain barrier.** *American Geophysical Union, Transactions*, 30(6):818–830, Dec. **1949.** 10 figs., 2 tables, 10 refs., 17 equations. **DWB**—Frictionless flow of an incompressible homogeneous air stream over a mountain barrier is discussed mathematically, first with fixed lateral boundaries and then a flow of infinite width. Streamlines and pressure contours are calculated by graphical integration and show a lee trough whose position and depth depend on wind velocity and mountain profile. With high speeds there is a secondary trough at mountain crest. Calculations are applied to an idealized Rocky Mountain profile in 39°N. with two crests. This gives a trough in 90–100°W. in agreement with observed 10,000 ft. isobars and maximum frequency of surface low pressure centers. *Subject Headings:* **Atmospheric circulation, Lee effects, Rocky Mountains, North America.**—*C.E.P.B.*

2.7–80 551.513.1

Izawa, Tatsuo, **On the upper disturbances in the westerlies whose mean circulation have longitudinal wind gradient.** *Meteorological Society of Japan, Journal, 2nd Ser.*, 28(7):224–232, July **1950.** 8 refs., 33 equations. In Japanese, English summary p. 232. **MH-BH**—The paper studies theoretically disturbances in the jet stream of the westerlies with an eastward wind gradient, assuming constant absolute vorticity and irrotational perturbation. The wave length of the perturbation agrees with that calculated by C. G. Rossby (1939) and the amplitude increases eastward in the direction of decreasing zonal index. *Subject Headings:* **Waves in the westerlies, Jet stream.**—*C.E.P.B.*

2.7–81 551.513.1

Takahasi, K., **A note on the wave length in the westerlies.** *Meteorological Society of Japan, Journal, 2nd Ser.*, 28(11):418–420, Nov. 1950. 8 equations. In English. **MH-BH**—Waves in the westerlies have a length about 3500 km. From Rossby's equation, length of stationary waves is calculated theoretically as $\sqrt{\frac{2.6(U-C)RT}{\cos\phi}}$ where R is radius of earth and T one sidereal day. Putting U-C = 20 km./hr. and cos ϕ = 0.7, this gives a length of 3600 km. *Subject Heading:* **Waves in the westerlies.**—*C.E.P.B.*

ATMOSPHERIC DISTURBANCES

2.7–82 551.515.13(41)

§Teich, M., **Wanderung und Alterung eines Kaltlufttropfens.** [Movement and aging of a cold air bubble.] *Zeitschrift für Meteorologie*, 5(2):43–48, Feb. 1951. 9 figs., table. **MH-BH**—A tongue of cold air extended over the British Isles on May 2–3, 1950, from which an "island" was cut off. This formed a shallow depression which moved irregularly west till May 13–15, then rapidly east till May 20. The height of the 500 mb. surface at the center was 532 gpm. on May 4 and increased steadily to 548 gpm. on May 20, an increase of virtual mean temperature by ½°C. a day. *Subject Headings:* **Cold air bubbles, Seclusions, British Isles.**—*C.E.P.B.*

2.7–83 551.515.2:551.46(794)

*§Horrer, Paul L., **Southern Hemisphere swell and waves from a tropical storm at Long Beach, California.** *U. S. Beach Erosion Board, Bulletin*, 4(3):1–18, July 1950. 9 figs., table, 5 refs. **DGS**—The meteorological conditions producing wave action which destroyed or damaged breakwaters in the Long Beach area in 1930 and 1939 are analyzed and presented. Wave heights of 15 and 18 feet were measured by U. S. Engineers and 32 to 39 feet by U. S. Navy Observers in the Aircraft Carrier "Lexington" during the Sept. 1939 storm. The conclusion is that such conditions occur so rarely that it would be cheaper to reconstruct breakwaters after destruction each time, than to build structures that would withstand the swells from tropical storms. *Subject Headings:* **Wave damage, Tropical cyclones, Wave heights, Long Beach, California.**—*M.R.*

2.7–84 551.515.21

Arakawa, H., **Existence of descending motion in typhoon area.** *Meteorological Society of Japan, Journal, 2nd Ser.*, 28(7):233–235, July 1950. fig., table. In Japanese, English summary p. 235. **MH-BH**—There is marked descent of air 100–200 km. in the rear of a typhoon center, of a "free föhn" type, different from that in the eye. It is explained as an isallobaric divergent motion due to the isallobaric high in the rear of the typhoon (illustrated by diagram of stream lines). Author thinks it may occur also in some extra-tropical cyclones. *Subject Headings:* **Tropical cyclones, Subsidence.**—*C.E.P.B.*

2.7–85 551.515.21

James, R. W., **The structure of symmetrical depressions.** Sixth New Zealand Science Congress 1947, Reports. *Royal Society of New Zealand, Transactions*, 77(5):71–76, Nov. 1949. 2 tables, 17 equations. **DLC**—While frontal analysis is highly successful for short term forecasts, the general long term situation is largely governed by symmetrical systems. Author investigates geostrophic vortices on the observed basis that $h/(V_m R_m)$ varies little (h = depth of depression, V_m is maximum wind speed at distance R_m from center). Two types of profile are examined, exponential and power; the latter in the form $p = p_0 + h/(1 + r^n/a^n)$ fits the observations of 18 cyclones with n = 2 or 3. The synoptic implications are discussed including a "barrier" effect which inhibits the overclose approach of two vortices. *Subject Headings:* **Cyclone structure, Weather forecasting.**—*C.E.P.B.*

2.7–86 551.515.221

Magata, M., **Dynamics of the movement of atmospheric vortices.** *Papers in Meteorology and Geophysics*, 1(1):38–44, Oct. 1950. 16 equations. In English. **MH-BH**—Author

considers mathematically the case of a simple vortex with vertical axis travelling in a general current in which no vertical shear exists, and finds that it moves with the speed of the general current. When the current is baroclinic with vertical shear the problem is more difficult but a partial solution is obtained. *Subject Headings:* **Dynamics of the atmosphere, Vortices.**—*C.E.P.B.*

2.7–87 551.515.221

Magata, M., **Dynamics of the eye of storm.** *Papers in Meteorology and Geophysics*, 1(1):29–37, Oct. **1950.** 3 figs., 10 refs., 29 equations. In English. **MH-BH**—Author shows mathematically that in a stationary circular cyclonic system without friction there is a central area into which no wind blows, separated from the outer zone by a wind discontinuity. He also calculates vertical velocity and finds that in certain conditions of size of eye in relation to pressure distribution, there may be descending currents within the eye. *Subject Headings:* **Cyclone structure, Dynamics of the atmosphere.**—*C.E.P.B.*

2.7–88 551.515.3

Cliffe, E. and Martyn, J., **Waterspouts, Bahama Islands.** *Marine Observer*, 21(151):10, Jan. **1951.** 3 sketches. **DWB**—Two waterspouts on Feb. 17, 1950. *Subject Headings:* **Waterspouts, Bahama Islands.**

2.7–89 551.515(77)

§Fulks, J. R. and Smith, Clarence D., Jr., **A December storm accompanied by tornadoes.** *Monthly Weather Review*, 78(12):220–225, Dec. **1950.** 10 figs., table, 4 refs. **DWB**—Tornadoes have occurred in Dec. on only 3 days since 1835 in Illinois (1876, 1949 and 1950). Three occurred on Dec. 2, 1950, during a situation attended by maritime tropical air at the surface and overrunning maritime Pacific air aloft. The surface cold front arrived half an hour or more after the tornado, in each case. The preceding and attending synoptic history is clearly illustrated and ambient wind and radiosonde data given in charts and cross sections for the day of the tornado. The upper squall line was absent in this case. *Subject Headings:* **Tornadoes, Synoptic-aerological studies, Illinois.**—*M.R.*

2.7–90 551.515.3

Gordon, A. H., **Waterspouts, Part I.** *Marine Observer*, 21(151):47–60, Jan. **1951.** 5 figs., 4 photos, 2 tables, 6 refs. **DWB**—After a reference to damage by waterspouts, the dynamic and convection theories of their formation, the mechanics of rotation, and structure are described. Temperature and vapor pressure gradients in lowest 200 cm. are shown for sea warmer than air and vice versa. An investigation carried out from punch cards is described and a world map of the frequency distribution per 10,000 ships' observations presented. This shows maxima exceeding 20 or 30 in doldrums, on western sides of subtropical anticyclones and in central Mediterranean. A zonal table shows maximums in 0–10° and 30–40°N. and S. lat., where instability is most frequent. The photographs are of great interest. *Subject Headings:* **Waterspouts, Punched card methods.**

2.7–91 551.515.8:551.555

Due Rojo, Antonio, **Microturbonadas.** [Minute squalls.] *Urania*, Barcelona, 34(220): 130–135, Jan.–Dec. **1949.** 3 figs., table. **DWB**—A discussion of squalls or gusts which can be registered only by a very sensitive barograph and where maximum increase of pressure is about 1 mm. The author presents the barographic records of twenty minute squalls and an analysis of the change in temperature, relative humidity, pressure and in wind direction; of the observed wind velocity and of the wind velocity calculated by the following formula: $W = 14.4\sqrt{\Delta p}$ (W = wind velocity; Δp = maximum pressure change.) Microbarometric oscillations and other relationships shown graphically and 20 cases tabulated. *Subject Headings:* **Squalls, Spain.**—*I.L.D.*

RADIATION AND TEMPERATURE

RADIATION

2.7–92 551.521:697

Aujeszky, László, **A közvetett sugárzás jelentösége a szobaklímában.** [The significance of indirect radiation for indoor climate.] *Idöjárás*, 53(11–12):377–381, Nov.–Dec. **1949.** 2 refs. English summary p. 407. **MH-BH**—A long, textual article giving information on various kinds of solar radiation and their effect on comfort and air conditioning of buildings. *Subject Headings:* **Radiation, Heating and ventilating.**—*M.R.*

2.7–93 551.521:551.593.5

Shifrin, K. S., **K teorii rasseianiia sveta v atmosfere.** [Theory of diffusion of light in the atmosphere.] *Leningrad, Glavnaia Geofizicheskaia Observatoriia, Trudy*, 19(81):255–287, **1950.** 11 figs., 5 tables, 15 refs., 101 equations. **DLC**—The basic integral equations are solved and elaborate tables developed for computing the amount of scattering in the atmosphere under varying conditions. The first approximate theory of the author is compared with the diffraction theory of KIRCHOFF, and it is concluded that the coefficient of diffusion is (?) near $2\pi_a^2$. The second approximation for a sphere of ice or water of the dimension of the wave length of the light is then treated in detail, and then a comparison is made with calculations of other authors [MIC (1908), ROCARD (1930)] and, finally, the diffusion from nonspherical particles (elongated, dipolar and disc-shaped) worked out in some detail. It is shown that the same laws applicable to electric phenomena can be used for light and vice versa. *Subject Heading:* **Scattering.**—*M.R.*

2.7–94 551.521.1:551.510.53

Nicolet, M., **L'absorption de la radiation solaire dans la haute atmosphère.** [The absorption of solar radiation in the high atmosphere.] Commission pour l'Étude des Relations entre les Phénomènes Solaires et Terrestres, Sixième rapport, Orléans, France, p. 127–143 **1948.** 3 tables, 47 refs. **MH-BH**—Discusses monochromatic absorption by sodium, oxygen, atomic nitrogen, photo-dissociation of ozone, photo-ionization. A table of coefficients of absorption of numerous gases at different wave lengths and resulting molecular changes is given with a table of approximate levels of absorption. *Subject Headings:* **Ionization, Upper atmosphere, Solar radiation.**—*C.E.P.B.*

2.7–95 551.521.1

Sato, T., **Mathematical computation of insolation.** *Meteorological Society of Japan, Journal, 2nd Ser.*, 28(7):236–241, July **1950.** 10 figs., 10 tables. In Japanese, English summary p. 241. **MH-BH**—Tables and graphs give calculations of radiation received by the earth in different latitudes in gm. cal. by day at different times of year and totals for half year and year, for transmission coefficients of 0.6, 0.8 and 1.0. *Subject Heading:* **Solar radiation, Computation tables.**—*C.E.P.B.*

2.7–96 551.521.1:631.4

Sauberer, F., **Das Licht im Boden.** [Light in the soil.] *Wetter und Leben*, 3(3–4):40–44, March **1951.** 4 tables, 7 refs. **DWB**—Summarizes previous contradictory measurements of light penetrating soil. Reflection from grains of sand and loam is 5–35%, greatest in wet soil and at longer wave lengths. Hence, light penetrating by scattered reflection is reddish. Table gives penetration of 1.8–2.5 mm. fine compact soil by different wave lengths; great variation but all except old clean sand much below 0.001% (less than full moon light). Penetration in loose coarse soil may be 10–100 times greater. *Subject Heading:* **Soil illumination.**—*C.E.P.B.*

2.7–97 551.521.3

†*Kalitin, N. N., **Summarnaia radiatsiia v Pavlovske.** [Total radiation at Pavlovsk.] *Leningrad, Glavnaia Geofizicheskaia Observatoriia, Trudy*, 19(81):133–160, **1950.** 15 figs., 14 tables, 18 refs. **DLC**—Actinometric observations began at Pavlovsk (near Leningrad) in 1890 and were continued without interruption until August 1941. The enormous mass of data accumulated during that time has been analyzed from time to time by the author (who

died recently) and the results of these analyses are summarized in this important paper. Total radiation with no cloud, and with various types or amounts of cloud, is considered. Diurnal and seasonal variations in total (direct and diffuse) solar radiation, and variation with changing solar angle, are analyzed graphically and data given in tables. The annual variation in the various types of radiation is also shown graphically. *Subject Headings:* **Solar radiation, Pavlovsk, U.S.S.R.**—*M.R.*

2.7–98 551.521.4:523.74

Bappu, M. K. Vainu, **The spectrum of the light of the night sky during the recent sunspot maximum.** *Astrophysical Journal*, 111(1):201–202, Jan. **1950.** fig., table, 4 refs. **DLC**—Spectrograms of the light of the night sky were obtained at Hyderabad, India during the spot maximum of March and April 1947. A list of the prominent lines from λ 4277 to λ 6364 seen visually along with the relative intensities measured by the author and then measured by Babcock and a microphotographic record of one of the spectrograms are presented. The forbidden transitions of O(I), 5577, 6300 and 6364 Å and D lines of Na (I) are very distinct. A broad band of intensity is present in the region near 5700 Å and four components of wave length 5699, 5730 and 5755 Å are visible. Four bands observed at 5405, 5442, 5755 and 5963 Å are in coincidence with the members of the first positive series of N_2; the first three, being members of the intense bands found on either side of the green auroral line, are very intense. The enhanced intensity is attributed to intense solar activity during the sunspot maximum. *Subject Headings:* **Light of the night sky, Sunspots.**—*I.L.D.*

2.7–99 551.521.4 551.594.5 551.593.55

†Dufay, Jean, **Recherches sur les phénomènes optiques de la haute atmosphère effectuées depuis 1940 à l'Observatoire de Lyon et à l'Observatoire de Haute-Provence.** [Research on the optical phenomena of the upper atmosphere since 1940 at the Observatory of Lyons and the Observatory of Haute-Provence.] Commission pour l'Étude des Relations entre les Phénomènes Solaires et Terrestres, Sixième rapport, Orléans, France, p. 144–156, **1948.** 74 refs. **MH-BH**—Summarizes briefly works on: brilliance and color of the night sky, its polarization and the spectral composition of its light; intensity of rays of oxygen and sodium (5577, 6300 and 5892 Å); aurora; twilight phenomena; also laboratory research and theory. *Subject Headings:* **Light of the night sky, Auroras, Twilight.**—*C.E.P.B.*

2.7–100 551.521.63

Poliakova, E. A., **Spektrograficheskoe izuchenie prozrachnosti atmosfery dlia ul'trafioletovoĭ radiatsii solntsa.** [Spectrographic observation of atmospheric transparency for solar ultraviolet radiation.] *Leningrad, Glavnaia Geofizicheskaia Observatoriia, Trudy*, 19(81):185–192, **1950.** 5 figs., 2 tables, 7 refs., equations. **DLC**—Observations made at 3 different places in the U.S.S.R. at widely different latitudes, are used to determine characteristics of the atmosphere with respect to optical density of aerosols. The relation of such optical density to wave length from 3000 to 3600 Å at Pavlovsk, Sevastopol and Matsesta is shown graphically for different amounts of O_3. *Subject Headings:* **Ultraviolet light, Atmospheric transparency, Ozone, U.S.S.R.**—*M.R.*

2.7–101 551.521.63:633.1

Tallarico, Giuseppe, **La luce, il grano ed il pane.** [Light, wheat and bread.] *Rivista di Ecologia*, 1(3–4):115–119, **1950.** English summary p. 119. **DWB**—It is claimed that starch is produced by direct sunlight and gluten (protein) by diffuse light from the sky, accounting for high starch content in the humid north and high gluten content in the arid south. The diffuse light of the arid regions is found to be high in ultraviolet rays whereas the light from the cloudy or humid sky is low in total ultraviolet. *Subject Headings:* **Ultraviolet light, Sky radiation, Grain crops, Italy.**—*M.R.*

2.7–102 551.521.7

Waldemeier, M., **Radio-Helioscopie.** [Radio helioscopy.] *Naturwissenschaften*, 38(1): 1–4, Jan. **1951.** 6 figs. **DWB**—A summary of recent, mostly unpublished, results of radio-investigation of the sun in the region 1 cm.–10 m. Instrumental methods described. Dis-

tinguishes quiet sun (spot-free), enhanced radiation (sunspot groups) and bursts (isolated, grouped, intense coronal; mainly in meter waves). Ten cm. radiation S is closely related to sunspot activity R by S=1+.00686R. Recent observations agree with theory of an electron temperature gradient from 500,000° in innermost corona to 100,000° 1.5 radii from sun's center, and support theory of oscillations in corona. *Subject Heading:* **Solar radiation, Sun's corona.**—*C.E.P.B.*

TEMPERATURE

2.7–103 551.524.3

de Boer, H. J. and Euwe, W., **On long-periodical temperature variations.** *Indonesia,* (*K.*) *Magnetisch en Meteorologisch Observatorium te Batavia, Verhandelingen,* No. 35, **1949.** 16 p. 15 figs., 3 tables, 5 refs. **MH-BH**—An analysis of air temperature in Batavia and several other localities in Java by the use of running means of successive 10 year periods indicate a definite rise in temperature between 1921 and 1936. Similar increases in temperature have been noted all over the world but at the same time other localities show a simultaneous fall in temperature. The temperature curves of 150 stations, based on two year intervals from 1890–1930, have been mapped and it is concluded that there are large regions on the earth with long periodical temperature variations originating in the subtropical high pressure centers. *Subject Headings:* **Temperature variations, Batavia, Java.**—*I.L.D.*

2.7–104 551.524.32

Gleeson, Thomas A., **A theory of annual temperature variations.** *Florida State University, Dept. of Meteorology, Technical Report,* Nov. 30, **1950.** 86 leaves. 11 figs., table of symbols, 9 tables, 32 refs., 54 equations. Mimeographed. (Prepared under Project NR 082 071, Contract NONR-158(00) with Office of Naval Research.) **DWB**—This study is an attempt at a theoretical representation of the seasonal variations of temperature at a geographic location in terms of the important factors of the energy balance of the atmosphere and ground. Three models of the earth and atmosphere were assumed. Solutions of differential equations representing vertical heat transport for the atmosphere and ground were used and the solutions were related by boundary conditions at the earth's surface. The boundary conditions include parameters for the intensity of incoming solar radiation, the absorption of this radiation by the atmosphere, the albedo, the heat loss due to evaporation at the surface, heat radiation upwards from the surface, reradiation of heat to the surface from clouds and water vapor, vertical heat transport due to the convection and radiation between air and surface and heat conduction from the earth; all are functions of time. The theoretical calculations of the annual variations in potential temperature are compared with observed variations. *Subject Heading:* **Seasonal temperature variations.**—*I.L.D.*

2.7–105 551.524.35:523.74:550.38.5

Abbot, Charles Greeley, **Magnetic storms, solar radiation and Washington temperature departures.** *Smithsonian Miscellaneous Collections,* 110(6), June 25, **1948.** 12 p. 4 figs., 2 plates, 3 tables. **MH-BH**—Solar constant below 1.85 occurred on March 23, 1920 during central passage of a large sunspot group. Seventy other occasions of severe magnetic storms 1923–1946 gave deep depressions of solar constant, increased haziness and sky brightness and mean depression of Washington temperatures by about 2°F. *Subject Headings:* **Temperature variations, Sunspots, Magnetic storms, Washington, D. C.**—*C.E.P.B.*

2.7–106 551.524.36(492)

Levert, C., **Waar komen in ons land de laagste en waar de hoogste temperaturen voor?** [Where do the lowest and highest temperatures occur in our country?] *Hemel en Dampkring,* 49(1):12–14, **1951.** 2 figs., 2 tables. **DLC**—Holland is divided into northeast, southeast and west and the numbers of stations having absolute minima for the country in 3 winter months and maxima in 3 summer months tabulated for each year from 1925–1950. The minima occur mostly in the east, especially the southeast; the maxima definitely in the southeast. *Subject Headings:* **Temperature extremes, Netherlands.**—*C.E.P.B.*

2.7–107 551.524.37

Berliand, M. E. and Krasikov, P. N., **Issledovanie effektivnosti osnovnykh metodov bor'by s zamorozkami.** [Investigation of the efficiency of the principal methods of fighting early frosts.] *Leningrad, Glavnaia Geofizicheskaia Observatoriia, Trudy*, 19(81):5–13, **1950.** 10 refs. **DLC**—Since 1946 the Central Geophysical Observatory at Leningrad has been investigating the causes of frost damage to citrus fruits, vegetables, grapes, etc. and has conducted experiments to determine the most effective methods of preventing such damage, with a view toward improving the yield where such crops are already grown, and to exploit new areas, in colder regions, for growth of subtropical fruits and crops. The use of climatic statistics, the study of the physics of frost damage and of the effect of radiant heat, the effectiveness and relative cost of smudges using black or light colored (oil) smoke, respectively, are described and some of the theoretical considerations presented. The conclusion was that black smoke was much more effective than white. Future research problems are outlined. *Subject Headings:* **Frost prevention, U.S.S.R.**—*M.R.*

2.7–108 551.524.37:63

Palosuo, Erkki, **Hallaisuoskartan piirtämisestä.** [On the charting of frost incidence.] *Terra*, Helsinki, 62(1):28–35, **1950.** 3 figs., 11 refs. In Finnish, English summary p. 34–35. **DLC**—The author describes and presents examples of previous charts of frost incidence in Finland (Johansson's based on 1892–94 data and Brander's 1923, chart of area where potatoes were raised in spite of severe summer frosts). He then shows how charts of frost incidence can be compiled from data on sensitivity of potatoes to frost. Three categories are plotted: those areas where freezing is generally expected, those where a crop is usually harvested and those where potatoes grow even during the worst summers with respect to frost. Marks of frost are very clearly indicated on potatoes. *Subject Headings:* **Frost, Potatoes, Finland.**—*M.R.*

2.7–109 551.524.37(439.1)

*Tónay, Frigyesné, **Tavaszi fagyok Magyarországon.** [Spring frosts in Hungary.] *Időjárás*, 54(3–4):66–73, March–April **1950.** fig., 8 tables. **MH-BH**—Tables are presented and discussed, showing frequency of minima and "radiation minima" of 0°, −1°, −2°, −3°, −4° and −5°C. respectively based on records for 13 stations (1930–1944) for the 3 decades of April and May. *Subject Headings:* **Frost frequencies, Hungary.**—*M.R.*

2.7–110 551.524.7

Great Britain. Meteorological Office, **Temperature at 200 mb. in relation to the pressure at the tropopause.** *Meteorological Magazine*, London, 80(943):25–27, Jan. **1951.** 2 figs., table. **DWB**—Temperature frequency at 200 mb. at Larkhill shows two maxima. Temperatures at tropopause were classified according to pressure and show a clear association of high temperature with low tropopause (tropopause below 240 mb.), temperature most often −80 to −85°F., above 240 mb., −56 to −61°F. *Subject Headings:* **Upper air temperatures, Tropopause, Larkhill, Scotland.**—*C.E.P.B.*

2.7–111 551.526

Östman, C. J., **Om sambandet mellan köldsummor, isläggning och istjocklek.** [On correlation between negative temperature summations, ice formation and ice thickness.] *Sweden, Meteorologiska och Hydrologiska Institut, Meddelanden, Ser. A*, No. 1, **1950.** 20 p. 8 figs., 8 tables, 7 refs. English summary p. 19–20. **MH-BH**—Earlier investigations into the forecasting of formation, thickness and break-up of ice in the coastal waters of Sweden led to the calculation of the total number of degree-days below 0°C. (frost sums) for 132 Swedish ports for the period 1920–1945. Relations between these "frost sums" and the amount of ice are given statistically (in charts and tables). Water temperatures, number of days below 0°C., wind directions and speeds and other factors are also taken into account. *Subject Headings:* **Temperature summations, Sea ice formation, Gulf of Bothnia, Sweden.**—*M.R.*

ATMOSPHERIC PRESSURE AND WIND

PRESSURE

2.7–112 551.54:551.524.37(4)

van der Ham, C. J., **De luchtdrukverdeling tijdens het winterse weer in December 1950.** [The pressure distribution at the time of the severe winter weather in December 1950.] *Hemel en Dampkring*, 49(2):37–39, **1951.** 4 figs. **DLC**—Dec. 4–19, 1950 was very cold in Holland owing to a tongue of cold air extending south from Arctic over Holland. This is shown by mean pressure charts at surface (Dec. 13–17) and 500 meters (Dec. 16). Dec. 20–31 was also cold, but owing to a pressure distribution giving E winds. *Subject Headings:* **Pressure distribution, Severe winters, Western Europe.**—*C.E.P.B.*

2.7–113 551.543:551.513

Lorenz, Edward N., **Seasonal and irregular variations of the Northern Hemisphere sea-level pressure profile.** *Journal of Meteorology*, 8(1):52–59, Feb. **1951.** 5 figs., 2 tables, 7 refs., 2 equations. **MH-BH**—The variations of five-day mean sea level pressures averaged about fixed latitudes from 75° to 15°N. and the variations of differences between five-day mean pressures at selected latitudes were investigated statistically and linear correlation coefficients simultaneously and with time lags were determined between pairs of their mean sea level pressures and differences between pressures. Variations of the northern sea level pressure profile are the result of seasonal and irregular variations both of which are comprised of variations due to mean transport across the equator and the variations due to the rearrangement of mass within the Northern Hemisphere between two homogeneous zones. The characteristics of their pressure variations and of the pressure differences variations are discussed. The shifts of mass between zones resemble the fluctuations in high-index and low-index patterns; seasonal variations of the general circulation and primarily fluctuations between high-index and low-index patterns. *Subject Headings:* **Pressure variations, General circulation, Northern Hemisphere.**—*I.L.D.*

TURBULENCE

2.7–114 551.551

Inoue, Eiichi, **On the turbulent diffusion in the atmosphere** (I). *Meteorological Society of Japan, Journal, 2nd Ser.*, 28(12):441–456, Dec. **1950.** 6 figs., 12 refs., 55 equations. In English. **MH-BH**—Author defines a term "turbulon" for an element of non-laminar flow (nearly equivalent to eddy). Turbulent diffusion is discussed as the irregular motion of turbulons, interacting by turbulent friction. Various properties are examined, including the proportionality of scale and velocity, rate of dissipation of energy, and the difference between the smallest turbulon and the smallest eddy as defined by TAYLOR. *Subject Headings:* **Turbulence, Physics of the atmosphere.**—*C.E.P.B.*

2.7–115 551.551:533.16

Sutton, O. G., **On the stability of a fluid heated from below.** *Royal Society of London, Proceedings, Ser. A*, 204:297–309, **1950.** fig., 6 tables, 13 refs., 19 equations. **DWB**—Discusses the criterion for the onset or extinction of free convection in a layer between two horizontal planes. By Rayleigh's theory, sustained free convection is only possible if (difference of density)/(density at bottom) exceeds a critical value proportional to Rayleigh critical number/cube of depth of layer. Values of the critical number are given for free and rigid boundaries. Observations show that this is accurate for layers of depth exceeding 8 mm., where cellular convection develops at small temperature differences. In shallower layers of air (4–7½ mm.) a columnar circulation develops when the ratio of absolute temperature at base to top exceeds 1.026 to 1.018. At the temperature difference given by Rayleigh's formula columnar passes into cellular convection. *Subject Headings:* **Turbulence theory, Convective cells.**—*C.E.P.B.*

WIND

2.7–116 551.553.21(4)

Heyer, Ernst. **Zur Frage des "europäischen Monsuns."** [On the question of the "European monsoon."] *Zeitschrift für Meteorologie*, 4(7–8):247–248, July–Aug. **1950.** **MH-**

BH—The cool west winds of June are not a true monsoon, as pressure over Europe is high, not low. *Subject Headings:* **Monsoons, Europe.**—*C.E.P.B.*

2.7–117 532.527:551.553.3(261)

Wehner, Hans, **Betrachtungen über Strömungsverhältnisse einer wandernden Karmanschen Wirbelstrasse.** [Considerations on the flow conditions of a travelling Kármán eddy train.] *Zeitschrift für Meteorologie*, 4(7–8):248–250, July–Aug. **1950.** fig., equations. **MH-BH**—A mathematical discussion of the velocity field with periodic rotating vectors some distance from the eddy train. With increasing distance the periodicity is unaffected but the velocity decreases. The phenomena can be detected to lee of Jan Mayen. *Subject Headings:* **Lee eddies, Jan Mayen Island, Arctic Ocean.**—*C.E.P.B.*

2.7–118 551.54:551.584:551.510.42

Aujeszky, László, **A helyi szélklima megállapitásának módszereiről.** [Methodology of micrometeorological wind investigations.] *Időjárás*, 53(11–12):392–394, Nov.–Dec. **1949.** English summary p. 408. **MH-BH**—Limited samples of wind conditions in a small area, obtained by use of portable anemometers, do not give a true picture of the wind field which would affect dispersal of industrial atmospheric pollution. The topography, air mass properties and other micrometeorological peculiarities must be considered. *Subject Headings:* **Turbulence, Wind profile, Micrometeorology, Atmospheric pollution.**—*M.R.*

2.7–119 551.555:551.46

Schaaf, S. A. and Sauer, F. M., **A note on the tangential transfer of energy between wind and waves.** *American Geophysical Union, Transactions*, 31(6):867–869, Dec. **1950.** fig., 4 refs., 10 equations. **MH-BH**—The authors present a mathematical treatment of the relationship governing the tangential transfer of energy between wind and wave surface by tangential friction caused by the relative velocity between the wind and water particle velocities. The relationship developed is consistent to the second degree of approximation and wave steepness was used as a parameter. The expression developed is:

$$R_T = \rho C_D \pi^2 \delta^2 CU \left[\frac{U/2 - C + 2\eta(U-C)}{2} \right]$$

R_T = average energy transferred by tangential shear stress per unit wave area
ρ = air density
C_D = drag coefficient
δ = wave steepness
C = velocity of progress of wave
U = wind velocity
$\eta = 1/L \int_0^L \phi \sin(2\pi x/L) dx$
L = wave length
x = horizontal coordinate

Subject Headings: **Momentum transfer, Wind waves, Oceanography.**—*I.L.D.*

2.7–120 551.556 551.46

Groen, P., **Zwaartegolven in en op de zee.** [Gravity waves in and on the sea.] *Nederlands Tijdschrift voor Natuurkunde*, 16(11):250–262, Nov. **1950.** 7 figs., 20 refs., 12 equations. **DLC**—A brief, illustrated summary of the theory of gravity waves as developed by the hydrodynamicists and modified by recent work of Heisenberg, Sverdrup, Munk, Groen and others to take into consideration the effect of wind, turbulence, pressure, etc. on all types of sea waves. *Subject Headings:* **Gravity waves, Wind waves.**—*M.R.*

2.7–121 551.556:551.465

Hansen, Walter, **Triftstrom und Windstau.** [Drift current and wind thrust.] *Deutsche Hydrographische Zeitschrift*, 3(5–6):303–313, **1950.** table, equations. German and English summaries p. 303. **DWB**—The effects of the tangential shear of the wind on the horizontal and

vertical movements of the water in a narrow channel are calculated and tabulated for depths of 1–50 m. in channels 5–100 km. long with wind speeds 5–30 m./sec. *Subject Headings:* **Wind effects, Oceanography.**—*C.E.P.B.*

2.7–122 551.556:551.46(261.3)(484.9)

†*Hela, Ilmo, **A study of the annual fluctuation of the heights of sea-level in the Baltic and in the North Sea.** *Societas Scientiarum Finnica, Commentationes Physico-Mathematicae*, Helsinki, 8(14), **1948.** 51 p. 18 figs., 10 tables, 26 refs. English summary p. 48–49. **DLC**—Results of 80 years (1866–1945) of tide measurements made at Hanko and Russarö in Finland are analyzed to determine amount of and cause of fluctuations in height of Baltic. The annual variation was determined by means of a harmonic analysis of this almost homogenous series of records. Attempts are made to show periodicity. Annual variation also compared by decades, using tables and on a graph. Factors influencing this variation are: winds of a monsoonal character; variable discharge from rivers and melting ice in Gulf; seasonal changes in evaporation; effects of air pressure and, finally, effects of changes in hemispheric circulation patterns as shown by variation at a given season from one year to another; a comparison of seasonal variation during years with similar weather condition show effect of other variables; a comparison of anomalous years shows effect of circulation changes (from easterly to westerly type). *Subject Headings:* **Water level variations, Wind effects, Baltic Sea, North Sea.**—*M.R.*

2.7–123 551.556:551.46

§Hela, Ilmo, **Syysmyrskyt ja Itämeren vedenpinnan korkeudet.** [Autumn storms and the sea level of the Baltic.] *Terra*, Helsinki, 62(1):6–13, **1950.** fig., 6 charts. English summary p. 13. **DLC**—Prolonged westerly winds cause a rise in the level of the Baltic and easterly winds a lowering of that level; the difference between extreme values measured in one month was 64 cm. and over a longer period was 110 cm. Mean synoptic charts for two successive weeks in Oct. 1935 illustrate the opposing conditions producing extremely high or low levels. Individual storms during Oct. 1935 are also analyzed and illustrated, and the isolines of equal sea level height in the Baltic shown for one of those days. The effect of those storms on currents in the Kattegat and on the salinity of the Baltic is discussed *Subject Headings:* **Wind effects, Water level variations, Baltic Sea.**—*M.R.*

2.7–124 551.556:551.46:532.59

Mewes, E., **Wave dimensions in the North and Baltic Seas.** *U. S. Beach Erosion Board, Bulletin*, 4(2):1–30, April **1950.** 30 figs., 3 tables, 4 refs. **DGS**—Reports from 3 German lightships indicated that highest waves during storms (1936–7) in the North Sea were 8–9 m. in the southwest part, 5–6 m. in the eastern part and 3 m. in the Baltic Sea region. Estimates made by observers are usually too high, but these observations made on German lightships were verified with instruments wherever possible. Wave frequency and wave length data are also included. *Subject Headings:* **Wave heights, Marine observations, North Sea, Baltic Sea.**—*M.R.*

VERTICAL MOTION

2.7–125 551.558

†Rakipova, L. R., **Vertikal'noe peremeshchenie vozdukha v atmosfere i kosmicheskaia pyl'.** [Vertical motions of air in the atmosphere and cosmic dust.] *Leningrad, Glavnaia Geofizicheskaia Observatoriia, Trudy*, 19(81):209–224, **1950.** 18 refs., 31+equations. **DLC**—Theoretical considerations in regard to vertical exchange in the atmosphere and especially in the stratosphere, are developed and applied to the settling of cosmic dust (from meteor trails, etc.). Evidence from nacreous clouds and twilight phenomena is taken into account. *Subject Headings:* **Vertical motion, Meteoric dust.**—*M.R.*

2.7–126 551.558.1:551.508.822

Colson, DeVer, **An unusual radiosonde flight at Lander, Wyoming, indicating large vertical motions.** *American Meteorological Society, Bulletin*, 31(10):371–374, Dec. **1950.** 3 figs., 2 tables, 7 refs. **MH-BH**—Radiosonde flights made at 0300Z and 0425Z on Feb. 11, 1949 at Lander, Wyoming, showed irregularities in the ascent rate of the balloon including

actual descent during two intervals of the run. These results of the flights, which are presented tabularly, indicated the presence of large vertical air currents. These vertical air currents are explained on the basis of 1) a wave moving on a temperature inversion surface and 2) by the application of QUENEY'S studies of the airflow over mountain barriers. Fluctuations in surface pressure recorded on a barograph tracing during the time of the radiosonde flights lend weight to the first explanation. *Subject Headings:* **Vertical currents, Balloon ascension rates, Lander, Wyoming.**—*I.L.D.*

2.7–127 551.558.1

Eldridge, R. H., **Pilot balloon ascent near cumulonimbus cloud.** *Meteorological Magazine*, London, 79(941):327–328, Nov. **1950.** 2 figs. **MH-BH**—On July 27, 1940 in Suffolk a tail balloon showed downward currents of about 500 ft./min. for 3 minutes between 6000 and 4000 ft., associated with anticlockwise eddies of 100 and 300 yards diameter. *Subject Headings:* **Vertical motion, Eddies.** —*C.E.P.B.*

AQUEOUS VAPOR AND HYDROMETEORS

EVAPORATION

2.7–128 551.573:63

Contreras Arias, Alfonso, **La medida de la evapotranspiración, como base para la solución de problemas agrícolas importantes.** [The measurement of evapotranspiration, as a base for the solution of important agricultural problems.] *Chapingo, Organo de la Sociedad de Alumnos de la Escuela Nacional de Agricultura*, No. 21, May **1948.** 8 p. 2 figs., 3 photos, 9 refs. **MH-BH**—Description of evapotranspiration apparatus (Thornthwaite type) at Chapingo. Results are shown as annual cycle of pluviometric balance, divided into periods of deficiency of soil water, replenishment, excess and consumption. *Subject Headings:* **Evapotranspiration, Agricultural meteorology, Mexico.**—*C.E.P.B.*

2.7–129 551.573:551.574.1

Kobayasi, A., **On the evaporation of a moving small liquid particle.** *Meteorological Society of Japan, Journal, 2nd Ser.*, 28(11):398–404. Nov. **1950.** fig., 4 tables, 3 equations. In Japanese, English summary p. 403–404. **MH-BH**—Small droplets of sea water were sprayed into a wind tunnel air current 1.3 m./sec. At three points droplets were caught on oil film and measured. Evaporation at 92, 159 and 206 cm. down stream was 77.5, 82.6 and 90.3% of volume of drops. *Subject Headings:* **Evaporation, Condensation nuclei.**—*C.E.P.B.*

2.7–130 551.573

Langstroth, G. O., Diehl, C. H. H. and Winhold, E. J., **The evaporation of droplets in still air.** *Canadian Journal of Research, Section A, Physical Sciences*, 28(6):580–595, Nov. **1950.** 5 figs., 4 tables, 26 refs., 13 equations. **DGS**—The evaporation into still air of droplets 1–2 mm. in diameter suspended from the tip of a glass fiber was studied for nine liquids forming a series of graded volatility from toluene to aniline and including water. The apparatus and experimental procedure are described and the experimental data are presented tabularly and graphically. Theoretical equations for the evaporation of liquid droplet based upon diffusion theory and heat transfer are derived; these are

$$\sigma = 4\pi a^2\left(1-\frac{2}{3}\frac{a}{b}\right) \text{ and } \phi \frac{\epsilon}{k_b}\frac{a(b-a)}{b}\frac{T_o}{T_a}\frac{T_o^4-T_a^4}{T_o-T_a} \text{ respectively.}$$

The experimental results agreed with the results calculated by the theoretical equations. The surface temperature of the volatile droplets was significantly lower than the bulk temperature. Convection effects were found to be present in 43 mm. diameter evaporation vessels but were absent in the smaller vessels. *Subject Heading:* **Evaporation of droplets.**—*I.L.D.*

2.7–131 551.573

Luchak, G. and Langstroth, G. O., **Applications of diffusion theory to evaporation from droplets and flat surfaces.** *Canadian Journal of Research, Section A, Physical Sciences*,

28(6):574–579, Nov. **1950.** 5 refs., 20 equations. **DGS**—The authors investigated the extent to which diffusion equations for the evaporation of droplets in still air represent actual evaporation. This study is based upon the assumption that equilibrium conditions appropriate to the size of the droplet exist in the surrounding air at every instant. The solution of the diffusion equation with time-variable boundary condition is applied to the problem of evaporation from flat surfaces and droplets. An exact solution was obtained for evaporation from a flat surface under conditions of diffusion of vapor into infinite space above a flat surface and diffusion of vapor into a space bounded by an absorbing wall parallel to the liquid surface. The equations are $\frac{dm}{dt} = MC_0 D/\pi l$ and $\frac{dm}{dt} = \frac{Mdc_0}{b}$ respectively. In evaporation from a droplet, solution of the diffusion by the method of successive approximation was adopted; the equation obtained is $\frac{d}{dt}(a^2) = \left[\frac{d}{dt}(a^2)\right]_3 \cdot \frac{1}{\left(1 - \frac{Mc_0}{3p}\frac{b}{a}\right)}$. The equations obtained by the method of quasi-stationary states are good to a high degree of approximation for water temperature at 20°C. *Subject Heading:* **Evaporation of droplets.**—*I.L.D.*

2.7–132 551.573

Möller, Fritz, **Die Verdunstung als geophysikalisches Problem.** [Evaporation as a geophysical problem.] *Naturwissenschaftliche Rundschau*, 4(2):45–50, Feb. **1951.** 2 figs., 2 tables, 8 refs. **DWB**—The only *instrument* giving representative measures of evaporation from land is the lysimeter. Author discusses alternative ways. The difference rainfall − runoff gives regional values over land. Over oceans radiation balance or surface salinity serve the same purpose. A third method is investigation of the aerodynamical boundary layer. WUNDT developed a method by which evaporation can be deduced from variation of humidity along a resultant air trajectory plus rainfall. But resultant wind is not representative; large scale austausch must be taken into account. This gives only a broad scale result but can be applied to the sea and to period of less than a year. *Subject Headings:* **Evaporation measurement, Oceans.**—*C.E.P.B.*

2.7–133 551.573:06:551.588.6

Wilm, Harold G., Hoover, Marvin D., Kittredge, Joseph and others, **Report of the Committee on Evaporation and Transpiration, 1948–1949.** *American Geophysical Union, Transactions*, 30(6):903–906, Dec. **1949.** table, 3 refs. **DWB**—Report discusses estimates of evapotranspiration losses. E. G. DUNFORD found soil moisture deficits reduced by thinning pines. J. KITTREDGE describes evapotranspiration from San Dimas lysimeters. *Subject Headings:* **Evapotranspiration, Lysimeters, Forest influences.**—*C.E.P.B.*

2.7–134 551.573(61)

†*Dubief, J., **Évaporation et coefficients climatiques au Sahara.** [Evaporation and climatic coefficients of the Sahara.] *Institut de Recherches Sahariennes, Travaux*, Vol. 6, **1950.** [34 p.] 2 figs., 4 charts, table, 25 refs. Reprint available. **DWB**—A thorough study of daily, annual and regional variations in evaporation over Northwest Africa. Monthly average evaporation data are given for 41 stations in Algeria, Tripoli and French West Africa. Isolines of maximum, minimum and average annual evaporation are shown in charts for all of North Africa. Mean isolines of the coefficient D of evaporation are also presented for North Africa. *Subject Headings:* **Evaporation, Climatic index, Sahara, Algeria, Northwest Africa.**—*M.R.*

RAIN

2.7–135 551.577(83)

*Almeyda Arroyo, Elias, **Pluviometria de las zonas del desierto y las Estepas Calidas de Chile.** [Rainfall in the zones of the desert and hot, dry plains of Chile.] Santiago, Editorial Universitaria, [1949]. 162 p. 23 figs., tables. **DLC**—The author who for years was the chief meteorologist of Chile, spent years collecting and compiling rainfall data for Chile since the beginning of records. This material has been carefully checked and compiled and repre-

sented by regions. The homogeneity of the means was verified in the light of topographic and general continental influences by methods similar to those used in Europe and North America. The network of stations is shown in a chart and the author's latest and very carefully drawn isohyetal charts compared with those of W. KNOCHE, of JARA, of the Meteorological Service and the author's earlier crude charts. In addition to the numerous charts and detailed discussion of the methods used in their preparation, the entire series of records for all of the stations used, from the earliest (1869) to date, is given by months. *Subject Headings:* **Precipitation, Chile.**—*M.R.*

2.7–136 551:551.501.6551.577(92)

*Berlage, H. P., Jr., **Regenval in Indonesië.** [Rainfall in Indonesia.] *Indonesia, (K.) Magnetisch en Meteorologisch Observatorium te Batavia, Verhandelingen,* No. 37, **1949.** 212 p. all tables. Introduction and table of contents in Dutch and English. **DWB**—This monograph gives precipitation data at all those stations in Indonesia which have been in operation during 5 consecutive years within the period 1879 to 1941 inclusive. The number of these stations is 4339 and they cover Java, Madoera and the other islands of Indonesia including Dutch New Guinea. The tables give the mean monthly and mean annual rainfall in mm., the mean number of rain days, the mean daily maximum, the absolute maximum and month and year of absolute maximum and the maximum rainfall next but one. *Subject Headings:* **Precipitation data, Indonesia.**—*I.L.D.*

2.7–137 551.577.2(675)

*Bultot, F., **Régimes normaux et cartes des précipitations dans l'Est du Congo Belge.** [Normal regimes and maps of precipitation in the eastern Belgian Congo.] *Institut National pour l'Étude Agronomique du Congo Belge, Bureau climatologique, Communication* No. 1, **1950.** 51 p. charts, 11 tables, 13 refs. **DWB**—A thorough study of rainfall for the period 1930 to 1946 for the Ruanda-Urundi section in the northeast of the Belgian Congo. The text, which analyzes the data and shows the theoretical basis for the analysis, is supported by elaborate tables of data, graphs and isohyetal charts of the region. The effects of relief, latitude and circulation of the atmosphere are formulated. *Subject Headings:* **Precipitation distribution, Belgian Congo.**—*M.R.*

2.7–138 551.577.2(75)

Crowe, P. R., **Rainfall regime in the south-eastern United States.** (In **London, Essays in Geography, Memorial Volume.** Rodwell Jones, L. Dudley Stamp and S. W. Wooldridge (ed.). Cambridge, Harvard University Press, **1951.** p. 71–90. 12 figs., 7 refs.) **DLC**—A graphical method is devised for representing the monthly mean and extreme values of precipitation at a given station, and the general shape of the graphs used as a basis for classifying the rainfall types (or regimes) of a large area. The southeastern United States is taken as an example and 40 or 50 year records at over 100 stations analyzed and represented on a large chart of the Southeast. The details of the regime in each of 6 major regions are shown by enlarged station-graphs for representative stations and the peculiarities of each section discussed by regions and subregions. The seasonal variability at each place, and from place to place, is shown clearly on the overall chart, but the classification seems forced and unnecessary. *Subject Headings:* **Rainfall distribution, Southeastern United States.**—*M.R.*

2.7–139 551.577.2(711)

Pincock, G. L., **Precipitation in British Columbia.** *Weather,* 6(3):88–89, March **1951.** 2 maps, table. **DWB**—Description of orographic and wind shadow effects which cause annual precipitation to range from 7.2 to 261.8 inches. *Subject Headings:* **Precipitation distribution, British Columbia.**

2.7–140 551.577.36

Todd, David K., **Diurnal variation of precipitation frequency at New York City.** *American Meteorological Society, Bulletin,* 31(10):385, Dec. **1950.** fig. **MH-BH**—The author presents an isopleth diagram of precipitation occurrence expressed as percent frequency for New York City. The diagram includes each hour of the day for each month and is based

upon hourly precipitation records for a 50-year period. The character of the precipitation in New York is discussed. *Subject Headings:* **Precipitation frequencies, Diurnal precipitation variations, New York City.**—*I.L.D.*

2.7–141 551.577.37(492)

Levert, C., **Uiterst zware regens.** [Extreme heavy rain.] *Hemel en Dampkring*, 49(2):32–35, **1951.** 2 figs., ref. **DLC**—Author plots greatest rainfall h mm. in time t minutes ($\log h$, $\log t$) and fits straight lines of the form $h = a\sqrt{t}$, from 1 minute to 1 week. For the whole world $a = 47$, for Holland, all stations since 1850, $a = 66$, for De Bilt pluviograph 1926–48, $a = 2.3$. *Subject Headings:* **Precipitation extremes, Netherlands.**—*C.E.P.B.*

2.7–142 551.577.37/38:63(51)

Tao, Shih-yen, **The moist and dry climate of China.** *Chinese Geophysical Society, Journal*, Nanking, 2(1):121–130, June **1950.** 3 figs., 4 refs. In English, Chinese summary p. 121. **DWB**—The average annual water need for China is determined by means of Thornthwaite's formula for potential evapotranspiration; it ranges from about 500 to 1000 mm. The distribution of annual water need is represented on a map. Graphs showing the annual course of precipitation, water surplus and deficiency and water need are given for eight stations. Thornthwaite's moisture indices are modified so as to take into consideration the effect of the monsoons and are then used to classify the major moisture provinces of China. The normal positions of these major moisture regions are plotted on a map. The relationship of these moisture regions to drought and flood conditions and crop yields are discussed. *Subject Headings:* **Drought, Floods, Agricultural climatology, Evapotranspiration, China.**—*I.L.D.*

2.7–143 551.577.37:551.515.41(444.1)

Hader, F., **Der Semmering-Starkregen vom 5. Juni 1947.** [The heavy rain at Semmering on June 5, 1947.] *Wetter und Leben*, 3(3–4):36–40, March **1951.** fig., 3 tables. **DWB**—In 7 hours 324 mm. fell (chart of distribution given) in a local thunderstorm due to an inbreak of the European monsoon overrunning superheated stagnant air on E. of Alps, resulting in a labile overturn. This was renewed by another inbreak of cold front type. Violent hail. *Subject Headings:* **Excessive rainfall, Thunderstorm dynamics, Alps.**—*C.E.P.B.*

2.7–144 551.577.38(47)

†Gurevich, B. S., **Makrometeorologicheskiĭ zasukhoobrazuiushchiĭ protsess.** [Macrometeorological drought-producing process.] *Leningrad, Glavnaia Geofizicheskaia Observatoriia, Trudy*, 19(81):79–101, **1950.** 7 figs., 2+tables, 36 refs. **DLC**—A list of 22 catastrophic droughts, mostly in the southeastern part of European U.S.S.R., which occurred between 1890 and 1943, is presented in a table, together with a classification according to severity, genetic type, microstructure and solar activity (relative sunspot number) between October and July. Eleven of the 22 cases occurred with below average and eleven with above average sunspot number. The micro processes, air mass movements, general circulation of the atmosphere and other factors are treated in detail. *Subject Headings:* **Drought, General circulation, Solar influences, U.S.S.R.**—*M.R.*

HAIL

2.7–145 551.578.7(494.1)

Pohl, Wolfgang, **Das Hagelgewitter im oberbayerischen Voralpengebiet am Nachmittag des 27. August 1950.** [The hail thunderstorm in the Upper Bavarian Alpine foreland on the afternoon of August 27, 1950.] *Meteorologische Rundschau*, 4(1–2):30–31, Jan.–Feb. **1950. MH-BH**—Hailstones measured up to 7×4.5 cm., weight up to 70 gm. *Subject Headings:* **Hailstorms, Bavarian Alps.**—*C.E.P.B.*

2.7–146 551.578.7:551.515.4(09)

Schove, D. Justin, **Hail in history, A.D. 1630–1680.** *Weather*, 6(1):17–21, Jan. **1951.** 21 refs. **DWB**—Quotes a number of records of hailstorms in Britain which suggest that hail was much more frequent in 1641–70 than in 1601–30 or 1681–1710. This is attributed to an increased lapse rate of temperature. *Subject Headings:* **Hailstorms, History, Great Britain.**

HYDROMETEOROLOGY

2.7–147 551.579

Alter, Amos J., **Water supply in Alaska.** *American Water Works Association, Journal*, 42(6):519–532, June 1950. 18 figs., 2 refs. **DLC**—After a general discussion of geography and climate of Alaska the article takes up temperature and permafrost conditions in several regions of Alaska and shows how permafrost affects water supply as well as water systems or facilities. *Subject Headings:* **Water supply, Permafrost, Alaska.**—*M.R.*

2.7–148 551.579:628.1

Where is water short? Here is U. S. Geological Survey's answer. *Chemical Industries*, 66(4):515, April 1950. **DLC**—Analysis of water supply problems in the United States by regions. Indicates that critical shortages are almost entirely due to increased use for irrigation, industry or municipal purposes, or to poor water management. Recommends that planning be based on adequate hydrologic studies. *Subject Headings:* **Water supply, United States.**—*M.R.*

2.7–149 551.579:016

†Hydrologisk bibliografi åren 1939–1947. [Hydrology bibliography for the years 1939–1947.] *Sweden, Meteorologiska och Hydrologiska Institut, Meddelanden, Ser. D*, No. 2, **1949.** 22 p. **MH-BH**—A list of 46 titles published in Sweden, classified under 9 headings. English translations of titles and annotations. *Subject Headings:* **Hydrography, Hydrology, Bibliographies.**—*C.E.P.B.*

2.7–150 551.579:06

Bernard, Merrill, **The long term precipitation-runoff relations as the basis for forecasting water supply.** *American Geophysical Union, Transactions*, 30(3):386–395, June 1949. 11 figs., table, 6 refs., 7 equations. **DWB**—The author describes the technical and operational aspects of the United States Weather Bureau's water supply forecasting service in the western United States. The success of the statistical method of water supply forecasting is attributed to the extensive network of precipitation stations and stream discharge stations maintained for a long period of time, the high correlation between monthly precipitation at relatively low, intermediate and high elevations and to the forecasting advantage of snow accumulation through the winter months. The significance of the first two circumstances is illustrated graphically. The successive steps in statistical forecasting procedure are outlined and the progressive substitution of observed for statistical data with the progress of the season is illustrated. The reliability of the precipitation-runoff forecasting method is discussed and illustrated with special reference to one western and three New England drainage basins. *Subject Headings:* **Hydrometeorological services, Water supply forecasting, United States.**—*I.L.D.*

2.7–151 551.579.4

Langbein, Walter B., **Annual floods and the partial-duration flood series.** *American Geophysical Union, Transactions*, 30(6):879–881, Dec. **1949.** 1 fig., 2 tables. **DWB**—Annual flood is highest peak discharge in a water year. Partial duration floods are all those above a given base, numbered in order of decreasing magnitude. Tables and graph show relation between them. If expectancy $E = m/N$ of a flood (magnitude m, N years) in the partial duration series is known, probability that this will be an annual flood $= e^{-E}$. For recurrence intervals exceeding 5 years this is nearly 1. *Subject Heading:* **Flood frequencies.**—*C.E.P.B.*

2.7–152 551.579.4

Narabe, W., **Floods in the basin of river Ishikari.** *Journal of Meteorological Research*, Tokyo, 3(1):19–43, Dec. **1950.** 10 figs., 10 tables. In Japanese, English summary p. (1). **MH-BH**—Floods and flood damage were investigated in relation to variations of meteorological elements and water level. No results useful for forecasting floods were obtained. *Subject Headings:* **Floods, Ishikari River, Japan.**—*C.E.P.B.*

2.7–153 551.579.4:551.577.37(94)

Newman, B. W., **A lake is filled and other weather records.** *Weather Development and Research Bulletin*, No. 16:47–53, Dec. **1950.** photo. **DWB**—Very heavy rain fell in Queensland, New South Wales and Victoria in nearly all months from Feb. 1949–June 1950, in some places exceeding the previous record of 1890–91. Sydney had 135.71 inches in 19 months. Many rivers were in flood causing loss of life and livestock. Lake Eyre basin was filled for the first time probably since 1891 (photo). Tasmania had a long drought. *Subject Headings:* **Floods, Excessive rainfall, Australia.**—*C.E.P.B.*

2.7–154 551.579.4

Utsumi, T. and Hata, K., **A list of floods in Tohoku District.** *Journal of Meteorological Research*, Tokyo, 2(11):329–356, Nov. **1950.** tables. In Japanese. **MH-BH**—Gives dates of recorded floods A.D. 806–1948 and details in Japanese. *Subject Headings:* **Floods, Tohoku District, Japan.**—*C.E.P.B.*

2.7–155 551.579.5(43)

Uhlig, Siegfried, **Die Darstellung der Wasserverhältnisse im Boden demonstriert an den Verhältnissen der letzten Monate und Jahre.** [The exposition of the ground water conditions illustrated by the conditions of the latest months and years.] *Naturwissenschaftliche Rundschau*, 4(1):10–15, Jan. **1951.** 6 figs., 3 tables. **DWB**—The usual method of summarizing soil moisture by excess or deficit of cumulative rainfall totals is misleading, as shown by curves 1947–50 for three stations. Chrono-isolines of soil humidity (example, % by weight at Giessen to depth of 50 cm.) are more instructive but less easy to understand than curves of variation. Examples are shown superposed on long period normal curves and optimal curves for various crops. Finally, author discusses percolation curves and ground water levels. *Subject Headings:* **Soil moisture, Giessen, Germany.**—*C.E.P.B.*

CLIMATOLOGY AND BIOCLIMATOLOGY

CLIMATOLOGY

2.7–156 551.58:612

Ratcliff, J. D., **The weather tells our fortunes.** *Nation's Business*, 39(1):34–36, 58–59, Jan. **1951.** **DWB**—Wild predictions of the political, economic and social changes which are expected in the next half century, based on supposed climatic cycles. *Subject Headings:* **Climatic cycles, Human activity.**

2.7–157 551.582(94)

Gentilli, J., **The climate of Perth, W. A.** *Scope. University of Western Australia, Journal of the Science Union*, Perth, 1(4):3, **1949.** 7 tables. Reprint available. **MH-BH**—Climatic summary for Perth, W. A. and for 4 similarly situated places in other continents with tables of mean and extreme temperature, rainfall and raindays. *Subject Headings:* **Local climate, Perth, Western Australia.**—*C.E.P.B.*

2.7–158 551.582:633(94)

Gentilli, J., **Climatological work in Western Australia. I. The world and ourselves. II. Rainfall and wheat. III. The variability of the rainfall. IV. Evaporation and transpiration. V. Rainfall effectiveness. Title varies.** [A series prepared by Dr. Gentilli for the Gazette. n.d.] 3 p. each, approx. figs., maps, tables. **MH-BH**—Leaflets giving popular accounts of climatological work in Western Australia. 1) describes collection of data; 2) ideal rainfall distribution for wheat; 3) gives maps and table of variability of annual rainfall (interquartile range as per cent of normal); 4) emphasizes importance of evaporation and gives monthly amounts at 59 places; 5) sets out rainfall and evaporation balance at Perth by Thornthwaite's scheme and gives monthly rainfall effectiveness calculated as 1.2×rainfall/potential evapotranspiration. *Subject Headings:* **Climatology, Agriculture, Western Australia.**—*C.E.P.B.*

2.7–159 551.582(94)

Gentilli, J., **Weather and climate in Western Australia.** Western Australian Government Tourist and Publicity Bureau, [n.d.] 22 p. 23 maps, tables. **MH-BH**—Describes the climate of Perth and of 10 climatic regions of Western Australia, with useful monthly averages of climatic data at 8 places and maps of temperature, rainfall, evapotranspiration and water balance. *Subject Headings:* **Climatology, Western Australia.**—*C.E.P.B.*

2.7–160 551.582(54) 551.585.3(54)

O'Dwyer, Douglas, **The climates of Ceylon.** *Western Australia, University, Geographical Laboratory, Dept. of Economics, Research Report* No. 14, April **1950.** 9 p. map, tables. **MH-BH**—Brief description of climate with tables for 16 stations. From these the climatic types of Thornthwaite's 1931 classification are mapped and the vegetation and crops found in each described, with brief notes on manufactures and population. *Subject Headings:* **Climatology, Monsoon climates, Ceylon.**—*C.E.P.B.*

2.7–161 551.582

Brose, Karl, **Klimagramme.** [Climagrams.] *Meteorologische Rundschau,* 4(1–2):31–32, Jan.–Feb. **1951.** ref. **MH-BH**—Thirty examples of diagrammatic tables of means and extremes. (*See Meteorologische Rundschau,* 2:244–245, 1949 and 3:223–224, 1950.) *Subject Heading:* **Climagrams.**—*C.E.P.B.*

2.7–162 551.582.1(5)

The climate of the world. 4. Asia. *Weather,* 6(3):75–78, March **1951.** map, numerous diagrams. **DWB**—Diagrams for 30 stations show for each month, mean maximum and minimum temperature °F., pressure and rainfall (both inches). *Subject Headings:* **Climatology, Asia.**

2.7–163 551.582.3(54)

India. Meteorological Dept., **Climatological charts of the Indian monsoon area.** Poona, Government Photozinco Office, **1945.** 3+p. chiefly charts. **DWB**—The monograph contains charts for each month of the year on surface winds 0.5, 1, 2 and 3 km. above sea level; and rainfall amounts over land areas and percentage number of rain hours over sea areas; cyclone tracks. A brief analysis of the charts is presented. *Subject Headings:* **Climatological charts, India.**—*I.L.D.*

CLIMATIC CHANGES

2.7–164 551.583(41)

Manley, Gordon, **The range of variation of the British climate.** *Geographical Journal,* London, 117, Part 1:43–65, March **1951.** 7 figs., 4 tables, refs. Summary of discussion p. 65–68. **DLC**—A climatic amelioration in N.W. Europe set in about 1925–30, illustrated by temperatures for Lancashire since 1772 and length of growing season in Pennines since 1750. These recent changes are associated with weaker atmospheric circulation superposed on a rise of sea temperature. Conditions in the Climatic Optimum are compared. Pt. II discusses oscillations in the late glacial. A map of estimated Jan. and July isotherms in the British Isles during the Alleröd Oscillation (10,000–7,850 B.C.) and subsequent cooler "Pre-boreal" shows a retreat of 50° July isotherm resembling difference between warm and cool summers now. Levels of snow line and glacier fluctuations are discussed leading to estimates of snowfall and N. Atlantic circulation. Changes of summer temperature by 2–3°F. are regarded as sufficient to explain all vicissitudes. *Subject Headings:* **Climatic variations, Great Britain.**—*C.E.P.B.*

2.7–165 551.583:551.590.21

Predtechenskiĭ, P. P., **Dinamika klimata v sviazi s izmeneniiami solnechnoĭ deiatel'nosti.** [Dynamics of climate in relation with fluctuations of solar activity.] *Leningrad, Glavnaia Geofizicheskaia Observatoriia, Trudy,* 19(81):193–208, **1950.** 2 figs., table, 13 refs. **DLC**—An attempt to systematize the effect of major changes in solar activity over long geological periods, with climatic changes, with emphasis on the effects of changes in general circulation. *Subject Headings:* **Dynamic climatology, Solar influences, Climatic changes.**—*M.R.*

2.7–166 551.583.13:551.590.21(439.1)

Thraen, A., **A napfoltak hatása Budapest éghajlatára.** [Influence of sun spots on the climate of Budapest.] *Időjárás*, 53(11–12):375–376, Nov.–Dec. **1949.** 2 figs. German summary p. 406–407. **MH-BH**—Two composite charts show variations in Budapest climatic elements for period 1856–1944 according to 11 year periods (average of 8 sunspot cycles), and for the 89 year wave, respectively. Values are shown for each of the 4 seasons and for the sunspot number, the temperature, pressure and precipitation, on each chart. Conclusions, drawn from apparent correlations, are enumerated. *Subject Headings:* **Climatic variations, Periodicities, Sunspots, Budapest, Hungary.**—*M.R.*

2.7–167 551.583.15:551.579.5(42)

Schove, D. Justin, **Two centuries of spring and autumn weather in relation to the water-table.** *Weather*, 6(3):67–71, March **1951.** fig., 4 tables, 10 refs. **DWB**—From Greenwich temperatures and rainfall of England and Wales author finds that in the first half of the year hot spells follow series of dry years and cold spells follow wet years. In the second half the reverse holds. This is attributed to the delaying effect of a high water table on temperatures. Since 1800 spring has become drier, cooler and more stormy, September frosts occur after several dry years. *Subject Headings:* **Climatic variations, Water table, England, Wales.**—*C.E.P.B.*

2.7–168 551.583.2

Ahlmann, Hans W., **Klimaschwankungen der letzten Jahre.** [Climatic oscillations in recent years.] *Naturwissenschaftliche Rundschau*, 4(4):160–163, April **1951. DWB**—Summary by Arthur Kühn entitled: "The present climatic fluctuation," *Geographical Journal* 52:165, 1949. The recent climatic amelioration in the Arctic is due to increased atmospheric circulation, the cause of which is unknown. Describes retreats of glaciers, changes of oceanic circulation and poleward extension of fish, land animals and vegetation. *Subject Headings:* **Climatic variations, Historical climates, Arctic.**—*C.E.P.B.*

2.7–169 551.583.3:525.3

Meinardus, Wilhelm, **Zum Kanon der Erdbestrahlung.** [On the law of earth insolation.] *Geologische Rundschau*, Stuttgart, 34(7–8):748–762, **1944.** fold. graph, 2 tables, 28 refs., 10 equations. Reprint available. **MH-BH**—A discussion of the work by M. Milankovich with the same title (1941). After setting out the basic equations connecting radiation received in winter and summer half-years in different latitudes, the effects on terrestrial temperatures are considered, including secondary effects such as albedo of snow cover. The bearing on the Quaternary Glaciation is set out. Graph gives summer half-year radiation in each latitude for past 350,000 years. *Subject Headings:* **Solar climate, Insolation, Glacial periods.**—*C.E.P.B.*

2.7–170 551.583.7:06

Schwarzbach, M., **Geologentagung in Köln über das "Klima der Vorzeit."** [Geological congress in Cologne on the climate of the past.] *Naturwissenschaftliche Rundschau*, 4(4):174, April **1951. DWB**—Brief summary of congress on Jan. 6–7, 1951. Many aspects of geological climate discussed. *Subject Headings:* **Climatic changes, Geological congresses.**—*C.E.P.B.*

BIOCLIMATOLOGY

2.7–171 551.586:551.588.1:58/9

Rosenkranz, Friedrich, **Klimacharakter, Natur und Wirtschaft.** [Climatic character, nature and husbandry.] *Wetter und Leben*, 3(1–2):1–8, Jan. **1951.** table. **MH-BH**—In central Europe 1946–49 showed increased continentality compared with 30-year normal. Droughts have increased, as shown also by glacier and lake fluctuations. The effect, especially of more frequent hot days, on life is discussed—acceleration of growth, increase of locusts, hastening of caterpillar stage of moths, distribution of birds. Effect on plants even greater; maritime species suppressed and continental favored. Drying out has been aided by draining swamps and cutting trees, and there is a risk of a "vicious circle" of continentalization. *Subject Headings:* **Bioclimatology, Ecology, Continentality.**—*C.E.P.B.*

2.7–172 551.586:595.7

Uvarov, B. P., **Locusts and grasshoppers.** *Nature*, London, 166(4224):625–626, Oct. 14, 1950. **DLC**—An account of a symposium on locust and grasshopper control at the Birmingham Meeting of the British Association, Sec. D (Zoology) on Sept. 5, 1950. Problem can be solved only by concerted action of geographers, agronomists, biochemists, entomologists, physiologists and meteorologists. Wind is most important factor in migration, but rain is essential to breeding, temperatures of 86–95° for marching, radiant energy for proper heat and convection currents for carrying locusts to high altitudes where they are borne by strong winds (over 11 m.p.h. which is speed of flight) against will of insect. Synoptic studies suggested as method of solution of problems which cannot be explained by climatology. Meteorological forecasts can be made in advance to assist in control of insects. *Subject Headings:* **Insect control, Aerobiology, Meteorological elements.**—*M.R.*

2.7–173 551.586:612 551.510.41

Kérdö, István, **A levegö aktiv oxigénjének hatása az emberre.** [Effect of the active oxygen content of the air on man.] *Idöjárás*, 54(3–4):88–90, March–April 1950. ref. In Hungarian. **MH-BH**—Review of ideas of MANFRED CURRY on ozone (aran) and its effect on human organism. *Subject Headings:* **Physiological climatology, Aran, Manfred Curry.**—*M.R.*

2.7–174 551.586:612

Zhukov, A. P., **Dinamika izmeneniĭ vozbudimosti kozhnoĭ chuvstvitel'nosti i zritel'nogo apparata na vysotakh.** [Dynamics of the changes in the excitability of the tactile and visual sensations at high altitudes] (In Trudy El'brusskoĭ Ekspeditsii Akademii Nauk, SSSR, i Vsesoiuznogo Instituta Eksperimental'noĭ Meditsiny 1934 i 1935. [Reports of the Elbrus Expedition 1934 and 1935.] Moscow, 1936. p. 379–394. 5 figs., 38 refs. English summary p. 394. [*Ak. Nauk, SSSR, Komissiia po izucheniiu stratosfery*, Tom II.]) **DLC**—Measurements of chronaxie indicate that high altitude affects more strongly tactile sensations and central phosphene than pain sensations and peripheral phosphene. Inverse reciprocal changes in sensitivity (tactile and pain sensations; central and peripheral phosphene) occur at given intervals of time between afferent systems of the same sense organ. The abnormal effects of high altitude upon sensitivity can disappear after acclimatization. Acclimatization at relatively lower altitudes influences sensitivity at higher altitudes. *Subject Headings:* **Physiological climatology, Elbrus Expedition, U.S.S.R.**—*I.L.D.*

2.7–175 551.586:616

*Bukó, Mária, **Az idöjárás hatása az emberi szervezet normális és kóros müködésére és halálára.** [Influence of the weather upon normal and pathological phenomena in the human body and upon mortality.] *Idöjárás*, 53(11–12):355–359, Nov.–Dec. 1949. 3 figs., 7 tables. **MH-BH**—Monthly frequency of deaths and of cases of coronary sclerosis and angina pectoris for various years is shown in tables and graphs. Incidence of all above diseases highest in winter or spring, lowest in summer. *Subject Headings:* **Bioclimatology, Physiology.**—*M.R.*

2.7–176 551.586:628.8

National Academy of Sciences, National Research Council, Building Research Advisory Board, **Weather and the Building Industry.** BRAB Research Conference Report No. 1, Proceedings, Washington, D. C., April 1950. 159 p. figs., tables, numerous refs. **DLC**—This symposium, in which climatologists, architects and engineers participated, deals with the problem of fitting structures designed for human occupancy to climatic conditions. A method for describing the climate of a region by means of the frequency distribution of dry bulb and dew point temperatures, wind velocity and wind direction, of precipitation and of intensity of solar radiation is presented. The importance and use of the microclimatic approach in construction are discussed. The other topics considered are as follows: the effect of climate and weather upon roofing; the investigations, carried out in Austin, Texas, on the effect of climate upon houses similar in design but differing in heating, cooling, ventilating, in construction of windows, materials, etc.; the Canadian hut research program on the performance of various building materials and types of wall construction under varying atmospheric conditions; the

adaptation of architectural designs to microclimates of building sites and utilization of natural environment to minimize extremes of climate without the use of mechanical power; the economic importance of weather data in heating and air conditioning and the value of climatic data in air conditioning design, which is illustrated by their application to a private residence, on office building and theaters in Chicago, St. Louis and New Orleans. An extensive bibliography on the relationship of weather to building design, building materials, comfort, etc. is given. *Subject Headings:* **Artificial climates, Industrial climatology, Bioclimatology, Air conditioning, Climatic classification, Microclimatology.**—*I.L.D.*

2.7–177 551.586:634:595.7

Wellington, W. G., Fettes, J. J., Turner, K. B. and Belyea, R. M., **Physical and biological indicators of the development of outbreaks of the spruce budworm, *Choristoneura Fumiferana* (Clem.) (Lepidoptera: Tortricidae).** *Canadian Journal of Research, D*, 28:308–331, Dec. **1950.** 11 figs., table, 36 refs. Reprint available. **DWB**—Region considered north Minnesota to Maine. Development of spruce budworm favored by dry, sunny spring and summer, early snow cover and steady cold in winter. These come with Pc air, outbreaks show some relation to sunspot cycle, much more (opposed) to number of cyclone centers over preceding 4 years. Fewer cyclones mean less incidence of humid air masses. On the whole summer rainfall was deficient in 4 years preceding outbreaks. Other indicators—width of tree rings, outbreaks of forest tent caterpillar 3 years earlier. *Subject Headings:* **Bioclimatology, Forest entomology.**—*C.E.P.B.*

2.7–178 551.586:635

Bider, M. and Meyer, A., **Lässt sich der Zeitpunkt der Kirschenernte der Nordwestschweiz vorausbestimmen?** [Can the time of the cherry harvest in northwestern Switzerland be predicted?] *Schweizerische Zeitschrift für Obst- und Weinbau in Wädenswil*, **1946.** p. 1–8. 3 figs., photo. Reprint available. **MH-BH**—The principle of temperature summation was applied to predict the harvest date of cherries in northwest Switzerland. All mean temperatures from the beginning of the year until the date of harvest were calculated for months having a mean temperature above +3°C. The average temperature sum on the date of harvesting was 1175°. The use of this method to predict the harvest date in 1946 from the total sum of degrees at the end of April is illustrated. The prediction was not fully successful because of unusual heavy rainfall in May and June. *Subject Headings:* **Agricultural meteorology, Phenology, Crop yield forecasting, Switzerland.**—*I.L.D.*

2.7–179 551.586:636

Brody, Samuel, **Environmental physiology; with special reference to domestic animals. I. Physiological backgrounds.** *Missouri, University, College of Agriculture, Agricultural Experiment Station, Research Bulletin* 423, Sept. **1948.** 41 p. 26 figs., equations. **MH-BH**—The fundamental relationships between the physiological processes of cattle and climate are discussed. The indirect influence exerted by climate upon animals through soils and crops and the desert effect of climate upon the nervous system, endocrine system enzyme system, metabolic levels and rates and upon all productive processes are considered. The physical processes of heat regulation through radiation conduction and convection are analyzed briefly. The physiological processes of heat regulation in homeotherms, engineering devices for controlling the microclimates of animals. The causes, mechanisms and the prevention of death from overheating, with particular reference to solar radiations, various adaptations of animals to heat and cold stress are discussed. An outline of the research program of the Animal Psychoenergetic Laboratory of the University of Missouri is presented. *Subject Heading:* **Animal climatology.**—*I.L.D.*

2.7–180 551.586:636

Findlay, J. D., **The effects of temperature, humidity, air movement and solar radiation on the behaviour and physiology of cattle and other farm animals, a review of existing knowledge.** *Hannah Research Institute, Bulletin* No. 9, **1950.** 178 p. 43 figs., 26 plates, 23 tables, numerous refs. **DA**—This monograph presents a comprehensive and critical review of the

literature on the effects of tropical environments upon the behavior, physiology and productivity of cattle, sheep, pigs and domestic fowls. The author discusses the separate and combined effects of temperature, humidity, air movement and solar radiation upon body temperature, heart rate, respiratory rate, evaporation of moisture through the skin, upon the grazing habits of cattle, milk yield and egg production. The methods and apparatus used for measuring the body and skin temperature, the respiratory rate, heart rate and blood pressure of farm animals, the methods of measuring the climatic variables and the features of the psychrometric room are given in detail. *Subject Heading:* **Animal climatology.**—*I.L.D.*

MISCELLANEOUS APPLICATIONS

COSMIC INFLUENCES

2.7–181 551.590:517.512.2

Paul M., **Beitrag zur Frage einer solaren Steuerung geophysikalischer Vorgänge.** [A contribution to the problem of a solar control of geophysical processes.] *Geofisica Pura e Applicata*, 17(1–2):13–36, July–Sept. **1950.** 7 figs., 12 tables, 12 refs. In German, German and English summaries p. 13. **MH-BH**—An analysis of the temporal sequence of terrestrial magnetic disturbances with an International Characteristic Number $C_{int} < 1.6$ and of an earthquake series compiled by M. Wiedemann indicates that the temporal sequence of these phenomena manifests a period of 34.19 days. A harmonic analysis of this period shows that it consists of two phases differing by 180°. A comparison of the amplitudes of these waves with the expectance as defined by A. Schuster excludes the possibility that the period is a matter of chance. This period is identical with a period of 34.19 days characterizing the rotation of a hypothetical sun-core. Periods of the form $\frac{\tau\rho \times 34^d \times 19}{\tau\rho - 34 \times 19}$ ($\tau\rho$—period of the revolution of a single planet) characterize also Mercury, Venus, Earth, Mars and Jupiter. The causes of the period of Mercury are discussed. *Subject Headings:* **Solar influences, Magnetic storms, Periodicities.**—*I.L.D.*

2.7–182 551.590.21:551.594.7

Iwanowska, Wilhelmina, **Fale radiowe pochodzenia kosmicznego.** [Radio waves of cosmic source.] *Przegląd Meteorologiczny i Hydrologiczny*, Warsaw, No. 2–4:3–10, Dec. **1948.** fig. English summary p. 10. **DWB**—The entire spectrum of radiation from the ultraviolet to the long wave radio frequencies (10^{-5} to 10^{6} cm.) is shown graphically and a general discussion of theories as to their origin (solar and cosmic) and the influence of magnetic fields of sun and earth thereon, included. The relation of sunspots and other factors to radio emissions is also reviewed. *Subject Headings:* **Solar influences, Radio emanations.**—*M.R.*

2.7–183 551.590.21:551.577.38(81)

Sampaio Ferraz, Joaquim de, **Iminência duma "grande" seca nordestina. (Algumas indicações empíricas de sua possível ocorrência em tôrno de meados do atual decênio.)** [Threat of a great drought in the Northeastern [state of Brazil]. (Some empirical indications of its possible recurrence in the middle of that present decade.)] *Revista Brasileira de Geografia*, 12(1), **1950.** 16 p. graph, table, refs. French, Spanish, Italian, German, English and Esperanto summaries p. 13–16. **MH-BH**—Author finds periodicities of 12.9 and 23.7 years in annual rainfall of Fortaleza, Ceara and also relations to sunspot maximum. From these he infers that an intense drought is probable about 1954–55. *Subject Headings:* **Solar influences, Drought, Brazil.**—*C.E.P.B.*

2.7–184 551.510.535:551.590.22 550.386 517.512.2

Tschu, K.-k., **On the determination of lunar and luni-solar daily variations in certain geophysical data by means of the Chapman-Miller method.** *Chinese Geophysical Society, Journal*, Nanking, 2(1):74–82, June **1950,** 8 refs., equations. In English, Chinese summary p. 74. **DWB**—The procedure and formulas necessary for determining lunar harmonics from geomagnetic and meteorological data are presented. The application of the Chapman-Miller

method to ionospheric data and the reliability of any determination of the lunar harmonic are discussed. *Subject Headings:* **Lunar influences, Magnetic disturbances, Ionosphere, Periodicities, Harmonic analysis.**—*I.L.D.*

OPTICAL PHENOMENA

2.7–185 551.593.54

Blue sun and moon. *Weather*, 6(4):124–125, April **1951**. **DWB**—Editorial comment and letters from S. E. Ashmore, Graeme C. Jackson, W. N. Lavis, W. F. S. Casson, describing phenomena on Sept. 26, 1950. Editors give a brief summary of theory. *Subject Headings:* **Turbidity, Blue sun, Smoke pall—Sept. 1950.**

2.7–186 551.593.54

Bull, G. A., **Blue sun and moon.** *Meteorological Magazine*, London, 80(943):1–4, Jan. **1951**. 7 refs. **DWB**—Summarizes observations of blue sun and moon from mid-Atlantic to Germany and the Mediterranean, traveling east from Sept. 25 to 30. Aircraft found a smoke cloud to about 38,000 feet, above which the sun was normal. Attributed to Canadian forest fires in Alberta on Sept. 17–24, carried by favorable upper winds. Previous cases and experiments described. *Subject Headings:* **Blue sun, Forest fires, Smoke pall—Sept. 1950, Western Europe.**

2.7–187 551.593.55

de Vaucouleurs, Gérard, **Observations des discontinuités crépusculaires.** [Observations of twilight discontinuities.] *Académie des Sciences, Paris, Comptes Rendus*, 252(4):342–344, Jan. 22, **1951**. fig., 3 refs. **DWB**—The existence of twilight discontinuities is substantiated by photometer measurements of the illumination at the zenith. The explanation suggested is based on the existence of atmospheric discontinuities at 25, 85, 115 and 155 km., which in turn produce diffusion in the illumination. A chart illustrates the effect. *Subject Heading:* **Twilight.**—*M.R.*

2.7–188 551.593.63

Eccles, P. B., Hodkinson, J., Waite, T. L. A. and Elston, F. A., **Solar halos, New Zealand waters, North Atlantic Ocean.** *Marine Observer*, 21(151):14–16, Jan. **1951**. 3 figs. **DWB**—The halo complex of Jan. 31, 1950, sketched from "Weather Observer" shows halos of 22° and 46°, upper contact arc of 22° and 46° (circumzenithal arc), mock sun and secondary 22° halo round it. On Feb. 3, 1950, mock suns were seen on both 22° and 46° halos. *Subject Heading:* **Halos.**

2.7–189 551.593.63

Kingsland, D. and Pritchard, D. J. A., **Lunar halo, North Atlantic Ocean, Caribbean Sea.** *Marine Observer*, 21(151):16–17, Jan. **1951**. fig. **DWB**—On Jan. 5, 1950, a lunar halo of 25° was observed with a second moon the center of which was displaced 10′ from that of true moon. On March 7 a 22° lunar halo was intersected by an inexplicable arc. *Subject Headings:* **Halos, North Atlantic Ocean.**

2.7–190 551.593.63

Sonntag, D., **Beobachtung eines Mondhalos am 31. August 1950.** [Observation of a lunar halo on 31 Aug. 1950.] *Zeitschrift für Meteorologie*, 4(7–8):253, July–Aug. **1950**. **MH-BH**—At Leipzig a halo of 20–30° diameter had lateral and upper arcs of contact with mock moons. *Subject Heading:* **Halos.**—*C.E.P.B.*

2.7–191 551.593.65

Held, A., **Eine Lichtspiegelung vom Attersee.** [A light reflection from the Attersee (Lake).] *Wetter und Leben*, 3(3–4):62, March **1951**. **DWB**—At 10.30 p.m. on Oct. 23, 1950 rays from sun 3–6° above horizon (?) were reflected from calm lake surface to base of stratus cloud as a bright oval spot passing into red in the west. *Subject Heading:* **Cloud coloration.**—*C.E.P.B.*

AURORA

2.7–192 551.594.5:551.590.21

Chapman, Sydney, **Corpuscular influences upon the upper atmosphere.** *Journal of Geophysical Research*, 55(4):361–372, Dec. 1950. 15 refs. **MH-BH**—A critical review of the evidence for the solar corpuscular theory, of the origin of auroras and of magnetic and ionospheric disturbances of varying intensities. Indirect evidence is based upon observations on the directive property and lateral limitation of solar flare influence and upon the supposed speed of corpuscles and time lag of the storms. The direct evidence for corpuscular emissions from the sun and for corpuscular ionospheric solar eclipses, the course of the charged corpuscles near the earth under the influence of magnetic and auroral activity and geomagnetic effects are discussed. The strongest present direct evidence for the solar corpuscular theory is provided by the hydrogen lines in the auroral spectrum; their broadening and displacement is attributed to the Döppler effect. *Subject Headings:* **Auroras, Corpuscular theory, Ionospheric disturbances.**—*I.L.D.*

2.7–193 551.594.5:551.594.7

Davidson, D., **Reflexion of high frequencies during auroral activity.** *Nature*, London, 167(4242):277–278, Feb. 17, 1951. 2 figs., 2 refs. **DWB**—Ionosphere reflection of 17.31 Mc./sec. waves observed at Concord, Mass. on Aug. 8, 1950 during strong aurora. *Subject Heading:* **Auroras.**

2.7–194 551.594.5

Malmfors, K. G., **Experiments on the aurorae.** Commission pour l'Étude des Relations entre les Phénomènes Solaires et Terrestres, Sixième rapport, Orléans, France, p. 108–110, 1948. fig. **MH-BH**—A model was constructed (magnetized steel sphere inside evacuated chamber). At pressure of 10^{-3}–10^{-4} mm. Hg and a voltage of 100 V. two illuminated rings appeared. Bearing on theory discussed. *Subject Heading:* **Auroras.**—*C.E.P.B.*

2.7–195 551.594.5:551.501.3

Thomsen, I. L., **A proposed auroral index figure.** Sixth New Zealand Science Congress 1947, Reports. *Royal Society of New Zealand, Transactions*, 77(5):58–60, Nov. 1949. **DLC**—Defines a scale 1–15 based on intensity and form of aurora at short intervals at individual stations. The scale can be integrated over separate hours and over the whole display. *Subject Headings:* **Auroras, Constants.**

PART II. SELECTIVE ANNOTATED BIBLIOGRAPHY ON SPECIAL WINDS

By: *Nina A. Stepanova*

EXPLANATORY NOTE

This bibliography covers numerous investigations of winds observed in special locations which are characterized by some peculiar feature as distinguished from general wind phenomena.

Special winds depend on vertical orographic irregularities or on horizontal discontinuities of the earth's surface. The first factor results in ascending or descending winds, warm ones like the föhn and cold ones like the bora. Mountain and valley winds also belong in this group. The second factor causes land and sea breezes and some of the desert sand winds, like the khamsin or haboob. All of the winds in this group depend on variations in the earth's surface and distribution of land and sea.

From all the references consulted 311 have been selected for publication. The bulk of the material deals either with theoretical studies or descriptions of typical characteristics of special winds. In addition, all available items about special winds in localities where little investigation has been done, and some articles dealing with unusual phenomena associated with local winds, have been included.

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BIBLIOGRAPHY ON SPECIAL WINDS

1801

2G–1 551.553.11:551.555.8:551.555.4

Capper, James, **Observations on the winds and monsoons; illustrated with chart and accompanied with notes, geographical and meteorological.** London, **1801.** 234 p. tables, refs. **DWB**—An early monograph on winds beginning with Seneca's definition of the nature of wind in general and describing various winds at different places on the globe. The following special winds are treated: land and sea breezes of the Gulf of Bengal (p. 43); khamsin of the Arabian Coast, upper Egypt, and the Gulf of Persia (p. 75); etesian winds in Greece and Morea (p. 78); sirocco (p. 78 and 187); mistral (p. 80 and 189). References are made to ancient sources, such as Pliny and Cicero, and the whole book has the imprint of ancient scientific narration. *Subject Headings:* **Special winds, Land and sea breezes, Khamsin, Mistral.**

1842

2G–2 551.553.12

Saigey, Jacques Frédéric, **Petite physique du globe.** [Brief physics of the globe.] Paris, Hachette, **1842.** 288 p. **DLC**—This old booklet contains on p. 217 of Part I the first attempt to give an explanation for mountain and valley winds. *Subject Headings:* **Special winds, Mountain and valley wind theory.**

1861

2G–3 551.555.3(57)

Middendorff, A. von, **Sibirische Reise.** Band 4. Teil 1. **Uebersicht der Natu Nord-und Ost-Sibiriens.** Dritte Lieferung: **Klima.** [Siberian traveling. Vol. 4, Part 1. Survey of the nature of north and east Siberia. Third issue: Climate.] St. Petersburg, **1861.** 523 p. suppl. of 25 p. of figs., tables, refs. **DWB**—An interesting phenomenon of "Warmwind" is described on p. 382–383. This wind blows from SSE in NE Siberia near the Stanovoï Mountain range and might be considered a kind of föhn. *Subject Headings:* **Special winds, Föhn winds, Siberia.**

1865

2G–4 551.555

Tyndall, John, **On ice and glaciers.** *London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science*, Ser. 4, 30:393–404, Dec. **1865.** 6 figs., 6 refs. **DWB**—Contains the early föhn theory presented by Prof. HELMHOLZ, which refutes the older ideas about föhn origin in the Sahara and stresses the orographic effect on loss of moisture by ascending motion of the air and the warming process by the descent of air masses to the valleys. *Subject Headings:* **Special winds, Föhn theory.**

1866

2G–5 551.555.4(497)

Bucchich, Georg, **Ueber eine mit Bora verbundene eigentümliche Art von Nebel und über die Verbreitung der Bora.** [On a peculiar kind of fog associated with the bora and on the extension of the bora.] *Österreichische Gesellschaft für Meteorologie, Zeitschrift*, 1(15):231–233, Sept. 21, **1866.** 2 refs. **DWB**—A peculiar phenomenon accompanying the bora wind is described and explained as a kind of dense fog produced when the bora lifts a mass of small drops from the sea surface. *Subject Headings:* **Special winds, Bora, Macedonia.**

2G–6 551.555.4(262)

Deschmann, Carl, **Ueber die Bora in Krain.** [On the Bora in Carniola.] *Österreichische Gesellschaft für Meteorologie, Zeitschrift*, 1(18):281, Oct. 21, **1866. DWB**—Confirming the view of PRETTNER andh is explanation of the bora as produced by the polar currents, the author described the conditions at the station of St. Magdalena near Idraja where only a slight breeze appeared during the storm on the higher points. *Subject Headings:* **Special winds, Bora theory, Carniola, Yugoslavia, Adriatic Sea.**

2G–7 551.555.4(479)

Kämtz, L. F., **Ueber die Bora des Schwarzen Meeres.** [On the bora of the Black Sea.] *Österreichische Gesellschaft für Meteorologie, Zeitschrift*, 1(15):234–237, Sept. 21, **1866. DWB**—General description of the bora phenomenon and discussion of the origin of strong local winds. *Subject Headings:* **Special winds, Bora, Black Sea.**

2G–8 551.555.4(4)

Prettner, J., **Die Bora und der Tauernwind.** [The bora and the Tauernwind.] *Österreichische Gesellschaft für Meteorologie, Zeitschrift*, 1(14):210–214, Sept. 11 and 1(15):225–230, Sept. 21, **1866.** 6 refs. **DWB**—An early description of the bora and its extensions into Carso, Görg, Trieste, Istria and Quarnero, onto the Dalmatian coast, and over the sea close to the latitude of Ancona. It is the earliest attempt to explain this phenomenon as the intrusion, strengthened by local conditions, of a cold upper polar current into the warm SW stream. *Subject Headings:* **Special winds, Bora theory, Balkans, Adriatic Sea.**

1867

2G–9 551.555.3:551.555.8(494)

Dove, Heinrich Wilhelm, **Über Eiszeit, Föhn and Scirocco.** [On the Ice Age, föhn, and sirocco.] Berlin, **1867.** 116 p. figs., tables, refs. **DWB**—Föhn and sirocco winds are discussed on p. 20–56 and 57–116. Some cases are analyzed. *Subject Headings:* **Special winds, Föhn winds, Sirocco, Switzerland.**

1868

2G–10 551.555.3:551.558.8(494)

Dove, Heinrich Wilhelm, **Der Schweizer Föhn. Nachtrag zu Eiszeit, Föhn und Sirocco.** [The Swiss föhn. Reference to the Ice Age, föhn and sirocco.] Berlin, **1868.** 34 p. **DWB**—An early, theoretical discussion on the origin of föhn and sirocco winds. *Subject Headings:* **Special winds, Föhn theory, Sirocco, Switzerland.**

2G–11 551.555.3(4)

Wild, H., **Ueber Föhn und Eiszeit. Mit Nachtrag: der Schweizer Föhn. Entgegnung auf Dove's gleichnamige Schrift.** [On föhn winds and the Ice Age. With supplement: the Swiss föhn. Reply to an article of the same title by Dove.] Bern, **1868.** 90 p. 2 tables. **DWB**—The author comments at length on statements made by DOVE and calls attention to that author's tendency to complicate the most simple questions. The final result of the discussion is the definition of the föhn as a local phenomenon bearing no relation to the Sahara. *Subject Headings:* **Special winds, Föhn theory, Alps.**

1873

2G–12 551.555.3(479)

Voeĭkov (Woeikoff), Aleksandr Ivanovich, **Ein Föhn im Kaukasus.** [A föhn in the Caucasus.] *Österreichische Gesellschaft für Meteorologie, Zeitschrift*, 8(3):44–46, Feb., **1873. DWB**—The case of a föhn wind on Feb. 22–23, 1870 is described and illustrated by records of observations at four Caucasian stations. The possibility of föhn in other unexplored localities is discussed. *Subject Headings:* **Special winds, Föhn winds, Caucasus.**

1874

2G–13 551.555.3:551.555.4:551.555.8

Hammerschmied, Johann, **Ueber den Scirocco und den Föhn und über die Stürme.** [On the sirocco and the föhn and on storms.] *Verein zur Verbreitung naturwissenschaftlicher Kenntnisse, Schriften*, Vienna, 14:265–455, 1873–**1874.** 455 p. **DWB**—General description of sirocco and föhn and their physical characteristics. Early theoretical explanations of these phenomena and interesting indications of their geographical distribution are given. Some other local winds are also considered. *Subject Headings:* **Special winds, Föhn winds, Sirocco, Mistral.**

2G–14 551.555.4(262)

Willkomm, Moriz, **Das Klima der Balearen.** [The climate of the Balearic Islands.] *Österreichische Gesellschaft für Meteorologie, Zeitschrift*, 9(22):346–350, Nov. **1874. DWB**—Frequent and lasting NW winds called tramontana blow from the Gulf of Lions on to the Island of Minorca. Their effect makes a peculiar imprint on trees and on the whole landscape. *Subject Headings:* **Special winds, Tramontana, Balearic Islands.**

1881

2G–15 551.555.4

Dersch, Otto, **Ueber den Ursprung des Mistral.** [On the origin of the Mistral.] *Österreichische Gesellschaft für Meteorologie, Zeitschrift*, Vol. 16:52–57, **1881. DWB**—After reviewing the previous studies on the Mistral and its theoretical explanations, the author describes the synoptic conditions of this wind and its effect on precipitation. *Subject Headings:* **Special winds, Mistral theory.**

1884

2G–16 551.555.4(42)

Brunskill, Joseph, **"The Helm Wind" in NW-England.** *Royal Meteorological Society, Quarterly Journal*, 10(52):267–269, Oct. **1884. DWB**—The author describes a notorious plague wind accompanied by an "awful roar" on the Cross Fell part of the Pennines. The name "Helm" comes from the round mountain now called Cross Fell. Examples of the fury and danger of this wind, based on the author's personal experience and records, are presented. *Subject Headings:* **Special winds, Helm winds, Pennines, England.**

1885

2G–17 551.555.3(78)

Sherman, Loren A., **A theory of the Chinook.** *American Meteorological Journal*, 2(1):18–22, May **1885. DWB**—The whole western portion of the United States is considered by the author as being generally under the influence of the chinooks. The assumption is made that the chinook winds strike arctic air masses with an irregular force. They communicate a wave-like motion causing small portions of arctic air to be cut off and forced southward in advance of the main body. Similar theoretical considerations are developed and discussed. *Subject Headings:* **Special winds, Chinook winds, United States.**

2G–18 551.555.3

Hann, J., **Einige Bemerkungen zur Entwicklungs-Geschichte der Ansichten über den Ursprung des Föhn.** [Remarks on development of ideas on the origin of the föhn.] *Meteorologische Zeitschrift*, 2(11):393–399, Nov. **1885.** 9 refs. **DLC**—An extensive review of the theoretical knowledge of the föhn and sirocco phenomena compiled by scientists of the 19th century. *Subject Headings:* **Special winds, Föhn theory.**

1886

†2G–19 551.555.3(4)

Berndt, Gustav, **Der Föhn. Ein Beitrag zur orographischen Meteorologie und comparativen Klimatologie.** [The föhn. A contribution to orographic meteorology and comparative climatology.] Göttingen, **1886.** 346 p. 9 plates, map, numerous refs. **DWB**—Extensive study of föhn winds with a detailed analysis of all meteorological elements and contributing synoptic conditions. Electric, magnetic, and seismic phenomena are also considered. *Subject Headings:* **Special winds, Föhn winds, Alps.**

2G–20 551.555.3(19)

Bezold, Wilhelm von, **Noch ein Wort zur Entwicklungsgeschichte der Aussichten über den Ursprung des Föhn.** [Further comment on the origin of the föhn.] *Meteorologische Zeitschrift*, 3(2):84–85, Feb. **1886.** 5 refs. Hann's answer attached. **DLC**—Review of earlier works and discussion of the contribution made by HELMHOLZ in establishing a definition of thermodynamic föhn theory. *Subject Headings:* **Special winds, Föhn theory, History.**

2G–21 551.555.3(4)

Erk, Fritz, **Der Föhnsturm vom 15. und 16. Oktober 1885 und seine Wirkungen im bayerischen Gebiete.** [The föhn storm of October 15 and 16, 1885 and its effects in the Bavarian area.] *Meteorologische Zeitschrift*, 3(1):24–31, Jan. **1886.** fig., 3 refs. **DLC**—A detailed description of the most devastating storm observed since 1921–22. Its severity lead people to believe that the end of the world was imminent. *Subject Headings:* **Special winds, Föhn storms, Bavaria, Germany.**

2G–22 551.555.3(78)

Harrington, Mark W., **The Chinook winds.** *American Meteorological Journal*, 3(7):330–338, Nov. **1886.** Part II, *ibid.*, 3(10):467–475, Feb. 1887. Part III, *ibid.*, 3(11):516–523, March 1887. **DLC**—A comprehensive treatise on chinook wind as a type of wind caused by variations in relief. The relation between winds and terrestrial obstacles is investigated and discussed in detail in the first part. The nature of chinook and its relation to general weather conditions is described in Part II. The third part indicates the territory affected by this wind, its effect, and some special features. *Subject Headings:* **Special winds, Chinook winds, United States.**

2G–23 551.555.4(42)

Marriott, William, **The Helm wind of August 19th, 1885.** *Royal Meteorological Society, Quarterly Journal*, 12(57):1–10, Jan. **1886.** 4 figs., ref. **DWB**—Description of the locality where the helm wind occurs is illustrated by schematic profiles of the land. Some specific instances of the helm wind in this locality are described. Discussions by A. VOEĬKOV and other authors, who stress the similarity of these winds to the bora observed in Novorossisk, Russia and on the Istrian Coast, are added. Suggestions for amelioration of bora effects are cited. *Subject Headings:* **Special winds, Helm winds, Bora, Pennines, England.**

2G–24 551.555.3(4)

†Berndt, Gustav, **Der Alpenföhn in seinem Einfluss auf Natur und Menchenleben.** [The Alpine föhn and its effect on natural and human life.] *Petermanns Geographische Mitteilungen, Ergänzungsheft* No. 83, Gotha, **1886.** 66 p. map, 2 charts, numerous refs. **DLC**—A comprehensive treatise on föhn effects on the organic and inorganic worlds: on climate, snow cover, relief, the plant world, the animal world, and the human organism. Some advice is given for the choosing of locations for communication lines and building sites and for the prevention of fire. *Subject Headings:* **Special winds, Föhn winds, Alps.**

1887

2G–25 551.555.3(931)

Davis, W. M., **The foehn in New Zealand.** *American Meteorological Journal*, 3(10):442–443, Feb. **1887.** **DWB**—A brief note on a local föhnlike wind in New Zealand. *Subject Headings:* **Special winds, Föhn winds, New Zealand.**

2G–26 551.555.3:551.555.8(82)

Davis, W. M., **The foehn in the Andes.** *American Meteorological Journal*, 3(11):507–516, March **1887.** 5 tables, ref. **DLC**—Description of local hot winds of föhn and sirocco type according to narratives of several travelers through South America. Some observational data is presented. Explanations as to the origin of these winds are suggested. *Subject Headings:* **Special winds, Föhn winds, Zonda, Sirocco, Argentina.**

2G–27 551.555.3(931)

Davis, W. M., **The föhn.** *American Meteorological Journal*, 6(4):182–191, August and 6(5):224–227, Sept. **1887.** **DWB**—Treats of winds produced by the effect of mountains on passing air currents with a brief explanation of this phenomenon. The New Zealand föhn, called "nor'wester," which blows from the lofty New Zealand Alps down to the broad Canterbury Plains and the chinook wind blowing along the eastern slope of the Cordilleras are described. It was presumed that the föhn winds might appear in Patagonia along the eastern slope of the Andes. *Subject Headings:* **Special winds, Föhn winds, New Zealand.**

2G–28 551.555.4

Meyer, Hugo, **Ueber Fallwinde.** [On the fall winds.] *Das Wetter*, 4(11):241–246, Nov. **1887. DWB**—Theoretical discussion on different kinds of fall winds emphasizing their similar natures but their differing effects caused by various conditions of terrain. *Subject Headings:* **Special winds, Bora theory.**

1888

2G–29 551.555.3(78)

Hazen, Henry A., **Chinook winds.** *Monthly Weather Review*, 16:19–20, Jan. **1888. DWB**—Explanation of the origin of the name "chinook" and a review of the writings on this subject. The author concludes that there is no similarity between the chinook and the föhn winds. *Subject Headings:* **Special winds, Chinook winds, Rocky Mountains.**

2G–30 551.555.3(71)

McCaul, C. C., **South Alberta and the climatic effects of the chinook wind.** *American Meteorological Journal*, 5(4):145–159, Aug. **1888.** 3 tables, 5 refs. **DLC**—Physical features of South Alberta are briefly described and general characteristics of climate emphasizing the role of chinook winds are given. In winter this wind is distinctly warm and often raises the temperature in a few hours from −20°F. to +40°F. The snow cover disappears quickly and cattle resume their feeding. *Subject Headings:* **Special winds, Chinook winds, South Alberta, Canada.**

2G–31 551.555.3(4)

§Erk, Fritz, **Der Föhn.** [The föhn.] *Industrie and Gewerbeblatt, Vierteljahresschrift*, Bayreuth, No. 1, **1888.** 19 p. 4 plates, 3 refs. Reprint available. **DWB**—Meteorological sketch of föhn and brief review of the theoretical discussions on this subject. *Subject Headings:* **Special winds, Föhn winds, Alps.**

2G–32 551.555.8(45)

Hann, J., **T. Zona über den Scirocco vom 29. August 1885.** [T. Zona on the sirocco of August 29, 1885.] *Meteorologische Zeitschrift*, 5(10):409–410, Oct. **1888. DLC**—Interesting presentation of a strong sirocco in Palermo described by ZONA, and published in *Archives des Sciences*, No. 3, March 1888. This article, partly reprinted and discussed, shows the föhn nature of this phenomenon. *Subject Headings:* **Special winds, Sirocco, Föhn winds, Italy.**

1889

2G–33 551.555.3

Bezold, Wilhelm von, **Zur Thermodynamik der Atmosphäre.** [On thermodynamics of the atmosphere.] *Meteorologische Zeitschrift*, 6(7):249–260, July **1889. DLC**—One chapter of this lengthy article is devoted to the föhn theory with special emphasis on thermodynamic processes. *Subject Heading:* **Föhn theory.**

2G–34 551.555.3(4)

Hellmann, G., **Warmer und trockener Westwind aus einem Barometer-Maximum zu Wien.** [Warm and dry westerly wind at Vienna from a high pressure area.] *Meteorologische Zeitschrift*, 6(1):19, Jan. **1889. DLC**—Curious phenomenon of a remarkable dry and warm wind from a high pressure area with a cold center; evidently a descending air current. *Subject Headings:* **Special winds, Free föhn, Vienna.**

1890

2G–35 551.553.11(74)

†Davis, W. M., Schultz, L. G. and Ward, R. DeC., **An investigation of the sea-breeze.** *Harvard College Observations*, Vol. 21, Part 2, **1890.** 263 p. 21 tables, 8 plates, 28 refs. **DWB**—Contains discussion of the convection theory of land and sea breezes and their relations to general weather conditions. Dimensions and physical features of the sea breeze are described and the effect of the earth's rotation on the course of breezes is outlined. Attention is paid to SEEMANN's theory of the reaction of expanding air over the land and the reaction of the land and sea breezes to the general motion of the atmosphere. Arrival and penetration of the sea breeze into the coastal area is described in detail and some extracts from the records made by the observers are presented. Some tabulated data and charts of wind distribution are attached, and conclusive remarks concerning the origin of breezes complete the paper. *Subject Headings:* **Special winds, Land and sea breezes, United States.**

2G–36 551.555.8(62)

Pirona, A., **Chamsin in Alexandrien.** [Khamsin in Alexandria.] *Meteorologische Zeitschrift*, 7(5):200, May **1890. DLC**—Brief note on khamsin phenomenon with sand deposition observed on February 28, 1890. *Subject Headings:* **Special winds, Khamsin, Alexandria, Egypt.**

1891

2G–37 551.555.8(436)

Seeland, F., **Das Hagel-und Sciroccalwetter des 25. August in Klagenfurt.** [Hail and sirocco weather on August 25 in Klagenfurt.] *Meteorologische Zeitschrift*, 8(1):39, Jan. **1891.** 2 figs., plate. **DLC**—General description of weather changes accompanied by hail stones reaching ½ kgr. Samples schematically presented. *Subject Headings:* **Special winds, Sirocco, Klagenfurt, Germany.**

2G–38 551.555.4(497.1)

Seidel, Ferdinand, **Bemerkungen über die Karstbora.** [Remarks on the Carso bora.] *Meteorologische Zeitschrift*, 8(6):232–235, June **1891.** fig., table. **DLC**—Explanation of meteorological processes and description of geographical conditions contributing to development of bora with some remarks concerning the theoretical conceptions of this subject. *Subject Headings:* **Special winds, Bora, Carso, Yugoslavia.**

1892

2G–39 551.555.4(497)

Jedina, Rudolf, **Die Teildepressionen des Mittelmeeres und die Borastürme Triests.** [Secondary depressions of the Mediterranean Sea and bora storms in Trieste.] *Meteorologische Zeitschrift*, 9(9):344–345, Sept. **1892.** 3 refs. **DLC**—A treatise on the synoptic conditions and processes causing secondary depressions and bora. Forecasting possibilities are suggested. *Subject Headings:* **Special winds, Bora, Trieste.**

2G–40 551.555.3(4)

Kessler, J. G., **Föhnsturm vom 13. November 1891 in S. Gallen.** [Föhn storm on November 13, 1891 in St. Gallen.] *Meteorologische Zeitschrift*, 9(3):118, March **1892.** **DLC**—A rare case of rapid weather change, rise of temperature and decrease of humidity is described with some explanatory remarks on the general meteorological conditions in the Alps. *Subject Headings:* **Special winds, Föhn storms, Swiss Alps.**

1893

2G–41 551.555.3(78)

Ballou, Howard H., **The Chinook wind.** *American Meteorological Journal*, 9(12):541–547, 1892–**1893**. refs. **DWB**—General description of chinook wind and its harmful physiological effect. Comparison with föhn, zonda and other local winds is made and the origin discussed. *Subject Headings:* **Special winds, Chinook winds, Rocky Mountains.**

2G–42 551.555.4(497)

Marzelle, E., **Zur Bestimmung der Stärke einzelner Borastösse.** [On determination of the power of single bora gusts.] *Meteorologische Zeitschrift*, 10(3):97–101, March, **1893.** 2 tables. **DLC**—Research for the determination of the power of short and strong gusts of bora wind. Some quantitative values of extreme gusts reaching 52.2 m./sec. are presented. *Subject Headings:* **Special winds, Bora, Trieste.**

2G–43 551.555(85)

Middendorf, E. W., **Peru. Beobachtungen und Studien über das Land und seine Bewohner während eines 25 jährigen Aufenthaltes.** [Peru. Observations and studies of the land and its inhabitants during 25 years residence.] 3 Vol. Berlin, **1893–1895.** **DLC**—The author describes a severe snow storm called "Yalca" which is a local phenomenon in the Calla Pass near Chachapeyas in North Peru. It occurs frequently accompanied by a strong wind which endangers travelers going over this mountain pass. *Subject Headings:* **Special winds, Yalca, Calla Pass, Peru.**

1894

2G–44 551.555.3(431.5)

Bamler, C., **Föhnerscheinungen in den Vogesen und deren Einfluss auf das Klima der südlichen Vogesentäler.** [Föhn phenomena in the Vosges and their effect on the climate of southern valleys.] *Meteorologische Zeitschrift*, 11(4):143–147, April **1894.** table. **DLC**—Characteristic meteorological conditions during föhn and comparative analysis of meteorological elements on both sides of the Vosges. *Subject Headings:* **Special winds, Föhn winds, Vosges, France.**

1895

2G–45 551.555.3(4)

Billwiller, R., **Der Föhn vom 13. Januar 1895 am Nordfuss der Alpen und die Bildung einer Teildepression daselbst.** [The föhn on January 13, 1895 on the northern slope of the Alps and the formation there of a secondary depression.] *Meteorologische Zeitschrift*, 12(6):201–209, June **1895.** 3 tables. **DLC**—Analysis of one characteristic case of föhn and detailed description of atmospheric

processes and the synoptic situation at that time. It has been proved that the föhn phenomenon, bringing about great temperature gradients, is often the cause of secondary depressions. *Subject Headings:* **Special winds, Föhn winds, Alps.**

2G–46 551.555.3:551.555.8(6)

Köppen, Wladimir **Ueber Khamsin im Golf von Tajura.** [On the khamsin in the Gulf of Tajura.] *Annalen der Hydrographie und Maritimen Meteorologie*, 23(8):311–313, Aug. **1895.** 2 figs., 2 refs. **DLC**—Meteorological conditions during some strong khamsin winds are described and graphically presented. Föhn wind in Obock is mentioned. *Subject Headings:* **Special winds, Khamsin, Föhn winds, Africa.**

2G–47 551.553.11(83)

Marzelle, E., **Ausbleiben der Seebriese an Steilküsten.** [Absence of the sea breeze on steep coasts.] *Meteorologische Zeitschrift*, 12(12):457–458, Dec. **1895.** ref. **DLC**—Experience of a navy captain in Haven Gunin proves the absence of sea and land breezes on the steep, high (840 m.) coast of Chile. *Subject Headings:* **Special winds, Land and sea breezes, Chile.**

2G–48 551.555.3(436)

Pertner, J. M., **Die Föhnperiode vom 13. bis 16. Januar 1895 in Innsbruck.** [The föhn period of January 13–16, 1895 in Innsbruck.] *Meteorologische Zeitschrift*, 12(2):72–73, Feb. **1895. DLC**—An unusual case of a warm wind which resulted in the greatest rise of temperature ever observed in this area. *Subject Headings:* **Special winds, Föhn winds, Föhn effects, Innsbruck, Austria.**

1896

2G–49 551.555.3(436)

Oppolzer, Egon, **Föhnartiger Westwind aus einem Barometer-Maximum.** [A föhn-like west wind from a high pressure area.] *Meteorologische Zeitschrift*, 13(2):73, Feb. **1896. DLC**—A föhn-like wind was observed on February 9–10, 1896 in Vienna. This wind occurred at the N and NE outskirts of a high pressure area extending over Central Europe which had been influenced by a small cyclone drawing the air from above. *Subject Headings:* **Special winds, Free föhn, Vienna, Austria.**

1897

2G–50 551.555.3(436)

Trabert, Wilhelm, **Föhn in Bludenz.** [Föhn in Bludenz.] *Meteorologische Zeitschrift*, 14(1):34–35, **1897.** table. **DLC**—Hourly values of pressure, temperature and humidity observed during föhn on October 28–30, 1896 are given, and some weather characteristics are presented. *Subject Headings:* **Special winds, Föhn winds, Bludenz, Austria.**

2G–51 551.555.3(494.1)

Trabert, Wilhelm, **Föhn in den Ostalpen zu Spital a. Pyrn.** [Föhn in the eastern Alps at Spital on Pyrn.] *Meteorologische Zeitschrift*, 14(1):35–36, Jan. **1897.** table. **DLC**—Description of föhn storms observed in Spital on Pyrn which are considered as purely local phenomena of great violence with characteristic properties. *Subject Headings:* **Special winds, Föhn storms, Alps.**

1898

2G–52 551.555.3(494.1)

Klein, Robert, **Nordföhn zu Tragöss.** [Northern föhn in Tragöss.] *Meteorologische Zeitschrift*, 15(2):61–65, Feb. **1898.** 2 tables. **DLC**—Characteristics of a N and NW föhn with a local name "jauk." Some cases are analyzed and contributing synoptic conditions explained. *Subject Headings:* **Special winds, Föhn winds, Jauk winds, Alps.**

2G–53 551.555.4(497)

Seidel, Ferdinand, **Luftwellen bei Bora im Golfe von Triest.** [Air waves during bora in the Gulf of Trieste.] *Meteorologische Zeitschrift*, 15(6):230–231, June **1898. DLC**—The author observed a curious phenomenon during a bora on the Gulf of Trieste in which the landscape on the opposite coast seemed to be wavering. *Subject Headings:* **Special winds, Bora, Trieste.**

2G–54 551.555.3(479)

Voeĭkov (Woeikoff), Aleksandr Ivanovich, **Föhne in der Krim und dem NW Kaukasus** [Föhn in Crimea and the NW Caucasus.] *Meteorologische Zeitschrift*, 15(11):430–431, Nov. **1898.** tables, 2 refs. **DLC**—Description of the föhn and its warming effect in Sevastopol and Goriachiĭ. Kliuch. *Subject Headings:* **Special winds, Föhn winds, Crimea, Caucasus.**

1899

2G–55 551.555.3

Billwiller, R., **Ueber verschiedene Entstehungsarten und Erscheinungsformen des Föhns.** [On the various origins and forms of föhn.] *Meteorologische Zeitschrift*, 16(5):204–215, May **1899.** 2 tables, 9 refs. **DLC**—Detailed discussion of the föhn concept. An analysis of different cases of föhn proved that there is no considerable difference between the mountain föhn and the warm falling wind of anticyclones. *Subject Headings:* **Special winds, Föhn winds.**

2G–56 551.555.4(44)

Davis, William M., **"Helm Wind" beobachtet in den Cevennen.** ["Helm wind" observed in the Cévennes.] *Meteorologische Zeitschrift*, 16(3):124–125, March **1899.** fig., 2 refs. **DWB**—The author observed a stationary cloud in the Cévennes similar to those noticed in the Eden Valley in northwest England during the "helm wind." The main features of this phenomenon are illustrated by a schematic cross section. Some explanatory remarks are added. *Subject Headings:* **Special winds, Helm winds, Cévennes, France.**

1900

2G–57 551.555.3(494)

Wild, H., **Ueber den Föhn und Vorschlag zur Beschränkung seines Begriffs.** [On the föhn; a suggestion to limit it by its conception.] Zürich, **1900.** 98 p. tables, 18 plates, refs. **DWB**—An extensive föhn study based on observations made in the Swiss Alps. Detailed analysis of typical cases of föhn storms and a comprehensive discussion of the theoretical explanations of these phenomena. *Subject Headings:* **Special winds, Föhn winds, Switzerland.**

1901

2G–58 551.555.3(4)

Billwiller, R., **Bildung barometrischer Theilminima durch Föhne.** [Formation of secondary depressions by föhns.] *Meteorologische Zeitschrift*, 18(1):1–4, January **1901.** 6 tables. **DLC**—Some cases of föhn are analyzed. Proof is given that the formation of föhn on the northern side of the Central Alps preceded the development of a secondary depression. *Subject Headings:* **Special winds, Föhn winds, Alps.**

2G–59 551.555.3(71)

Früh, J., **Föhn in Fort Good Hope 66°20'N am Mackenzie River (Kanada).** [Föhn at Fort Good Hope 66°20'N on the Mackenzie River (Canada).] *Meteorologische Zeitschrift*, 18(1):36, Jan. **1901. DLC**—An interesting phenomenon of a very strong, warm wind from N or NNW raising the temperature 40°, causing damage to buildings and producing debility of living organisms, is described. It was evidently a föhn-type descending wind. *Subject Headings:* **Special winds, Föhn winds, Chinook winds, Canada.**

2G–60 551.555.3(988)

Voeĭkov (Woeikoff), Aleksandr Ivanovich, **Klima und Föhn der Dänemark-Insel, Scoresby-Sund.** [Climate and föhn of Denmark Island, Scoresby-Sund.] *Meteorologische Zeitschrift*, 18(1):5–10, Jan. **1901.** tables, refs. **DLC**—Evaluation of observations made during 10 months in 1891–92 by a Danish expedition. Outline of föhn phenomena presented. All the strong winds come from WNW and actually are well developed föhns, bringing about a rapid rise of temperature. *Subject Headings:* **Special winds, Föhn winds, Greenland.**

1902

2G–61 551.555.4(262)

Der Bora-Sturm im nördlichen Adriatischen Meere am 13. Januar und 1. Februar 1902. [The bora storm in the northern Adriatic Sea on January 31 and February 1, 1902.] *Annalen der Hydrographie und Maritimen Meteorologie*, 30(7):327–331, July **1902.** table, refs. **DLC**—Analysis of pressure distribution and general synoptic conditions during bora phenomena. *Subject Headings:* **Special winds, Bora, Adriatic Sea.**

1903

2G–62 551.555.3(73/9)

Krug-Genthe, Marta, **Der Chinook.** [The chinook.] *Geographische Zeitschrift*, 9(10):575–578, **1903.** 3 refs. **DWB**—Characteristics and extent of chinook winds in the United States are given. The effect on temperature and melting of snow is emphasized. *Subject Headings:* **Special winds, Chinook winds, United States.**

1904

2G–63 551.555.3(436)

§Billwiller, Robert, jun., **Der Bergeller Nordföhn.** [Bergell north föhn.] *Switzerland, Meteorologische Zentralanstalt, Annalen,* Jahrgang 1902. Sonderabdruck, Zurich **1904.** 56 p. fig., 18 charts, numerous tables, 9 refs. **DLC**—Comprehensive investigation of the varieties of föhn appearing in Bergell, a valley on the southern side of the Alps, well known as a place of frequent and intensive north föhns. Meteorological characteristics of different föhn phenomena and classification of north föhns according to the conditions of origin are included. Some important contributions to the föhn theory in general can also be found in this paper. *Subject Headings:* **Special winds, Föhn winds, Alps.**

2G–64 551.555.3(431.5)

*Klein, R., **Ergebnisse 5-jähriger Föhnbeobachtungen in Tragöss.** [Results of 5-year föhn observations in Tragöss.] *Meteorologische Zeitschrift,* 21(2):83–85, Feb. **1904.** table. **DWB**—Statistical data on the föhn phenomena in Tragöss and some remarks on the contributing factors and accompanying variations of meteorological elements. *Subject Headings:* **Special winds, Föhn winds, Germany.**

2G–65 551.555.4(479)

*Korostelev, N. A., **Novorossiiskaia bora.** [Bora in Novorossisk.] *Akademiia Nauk,* SSSR, *Zapiski,* Ser. 8, Vol. 15, No. 2, St. Petersburg, **1904.** 135 p. 18 tables, 10 plates, 7 refs. **DWB**—A monograph on bora in Novorossisk. Comprehensive study with a thorough investigation of frequency, duration and force of this wind, its definition and theoretical explanations. The possibility of forecasting is discussed. Ample authentic data of meteorological observations in Novorossisk and Markhotskiĭ Pereval are added. *Subject Headings:* **Special winds, Bora, Novorossisk, U.S.S.R.**

2G–66 551.555

Pernter, J. M., **Besondere Gattungen gefürchteter Winde bei uns und andewärts.** [Special kinds of winds dreaded in our land and in others.] *Verein zur Verbreitung Naturwissenschaftlicher Kenntnisse, Vorträge,* Vienna, 44(14):1–27, **1904.** **DWB**—Descriptive review of various hot and cold local winds. The article, written in popular style, contains many local names of winds. *Subject Heading:* **Special winds.**

1905

2G–67 551.555.3(44)

*Exner, F. M., **Föhn in den Pyrenäen.** [Föhn in the Pyrenees.] *Meteorologische Zeitschrift,* 22(8):372, Aug. **1905.** table. **DWB**—Some cases of föhn winds were found by the author while looking through the records of observations made in Bagnères-de-Bigorre. Authentic data for 1896, 1899 and 1900 are given. *Subject Headings:* **Special winds, Föhn winds, Pyrenees.**

2G–68 551.555.3(436)

von Ficker, Heinrich, **Innsbrucker Föhnstudien. 1. Beiträge zur Dynamik des Föhns.** [Föhn studies in Innsbruck. 1. Contributions to föhn dynamics.] *Vienna, [K.] Akademie der Wissenschaften, Math.-Naturw. Klasse, Denkschriften,* Band 78, **1905.** 81 p. 28 figs., tables. Reprint available. **DWB**—Investigation based on observations made during 1904 by self-recording apparatus located on a cross cut of the Inn valley at different heights. Extensive study of development of föhn with theoretical discussion. Föhn pauses noticed at nights in Innsbruck stimulated further investigation of this phenomenon. *Subject Headings:* **Special winds, Föhn winds, Innsbruck, Austria.**

1906

2G–69 551.555.3(79)

Campbell, Archibald, **The Santa Anna or desert winds.** *Monthly Weather Review,* 34(10):465, **1906.** **DLC**—A brief report on a local wind "Santa Anna," named for a town near Los Angeles, which blows violently and obscures the sky with quantities of dust. It comes from a northerly direction. In San Diego County this wind blows from the east while in the desert it comes from the west. Damage to trees and houses were sometimes observed. *Subject Headings:* **Special winds, Santa Anna winds, California, United States.**

2G–70 551.555.3(4)

Defant, Albert, **Innsbrucker Föhnstudien. II. Periodische Temperaturschwankungen bei Föhn und ihr Zusammenhang mit stehenden Luftwellen.** [Föhn studies in Innsbruck. II. Periodic temperature oscillations during föhn and their relation to standing air waves.] Vienna, **1906.** 24 p. 7 figs., 5 tables, equations. **DWB**—Investigation is based on thermogramms obtained in

Innsbruck in 1904 and 1905. Temperature oscillations appeared here before the onset of föhn or during föhn pauses. Characteristic periods are 14.0, 24.5 and 41.5 minutes long. The author explains these temperature oscillations as caused by a kind of standing waves in the air similar to seiches. *Subject Headings:* **Special winds, Föhn winds, Innsbruck, Austria.**

2G–71 551.553.11(431.5)

Kaiser, Max, **Land-und Seewinde an der deutschen Ostseeküste.** [Land and sea winds on the Baltic Sea coast.] Inaug. Diss.—Halle a.S., **1906.** 22 p. 7 tables, 3 plates, 9 refs. **DWB**—After reviewing the results of similar work done by Stow for Yorkshire and by W. M. Davis for the New England coast, the author analyzed the land and sea breezes on the German Baltic coast using anemographic records from 1901 through 1905 made in Memel, Pillau, Neufahrwasser and Swinemünde. Appropriate synoptic charts are included. Frequency, velocity and other characteristics of these winds are given. *Subject Headings:* **Special winds, Land and sea breezes, Baltic Sea, Germany.**

2G–72 551.553.11

Kaiser, Max, **Historische Entwicklung unserer Kenntniss der Land- und See Winde auf der Erde und Darstellung der gegenwärtigen Theorien.** [Historical development of the knowledge of land and sea winds on the earth and the presentation of recent theories.] *Das Wetter*, Nos. 1, 2, 3, 5, **1907.** 40 p. 7 figs., tables, numerous refs. Reprint available. **DWB**—Monograph on land and sea breezes. Comprehensive review of sources on the problem and theories of the phenomenon. *Subject Headings:* **Special winds, Land and sea breezes.**

1907

2G–73 551.555.9(44)

§de Martonne, E., **Note preliminaire sur le vent d'Autan.** [Preliminary note on the Autan wind.] Montpellier, Société Anonyme de l'Imprimerie Génerale du Midi, **1907.** 17 p. 5 figs., refs. **DWB.** Second note, *ibid.*, 1909. 5 figs., tables, refs. **DWB**—A local wind, "Autan," has been observed in eastern France. Peasants distinguish between the "white" and "black" Autan. Description of these phenomena with synoptic charts presenting typical situations conducive to these winds is completed by some theoretical suggestions. *Subject Headings:* **Autan wind, France.**

2G–74 551.555.4(497)

Marzelle, E., **Kälteeinbruch und Bora in Triest.** [Cold intrusions and bora in Trieste.] *Meteorologische Zeitschrift*, 24(4):171–172, **1907.** 3 tables, 2 refs. **DWB**—An extraordinary anticyclone appeared on January 20, 1907, in northeastern Europe, and, moving southwards, brought about very low minima (in Trieste, −12.8°C) and a steep barometric gradient resulting in a strong bora wind with a velocity of over 100 km./h. lasting 8 hours. *Subject Headings:* **Special winds, Bora, Trieste, Adriatic Sea.**

2G–75 551.555.3:616(436)

Trabert, Wilhelm, **Innsbrucker Föhnstudien. III. Der physiologische Einfluss von Föhn und Föhnlosem Wetter.** [Föhn studies in Innsbruck. III. Physiological effect of föhn and föhnless weather.] Vienna, **1907.** 24 p. 3 tables. **DWB**—Observations made in 1905 in Innsbruck provided the basis for investigation of the effect of meteorological factors on the human organism. Results showed a favorable physiological effect rendered by high and increasing pressure, and a bad influence by low and decreasing pressure. The föhn effect proved to be of little importance since the pressure distribution appeared to be the most influential factor. Surprisingly it has been discovered that the influence of certain week days on the state of the human organism was no less than that of meteorological factors. *Subject Headings:* **Special winds, Physiology, Föhn effects, Innsbruck, Austrian Alps.**

2G–76 551.555.4

*Voznesenskiĭ, A. V., **Ocherk klimaticheskikh osobennosteĭ Baĭkala.** [Climatic features of Lake Baikal.] St. Petersburg, **1907.** 159 p. 6 figs., 9 tables, charts. **DWB**—On p. 140–142 a strong local wind "Sarma" is described in detail. It is a severe NNW wind coming down from the estuary of the Sarma River, causing disasters to vessels on the lake. Striking examples of damage are given. Most frequent in the autumn, this wind sometimes reaches the velocity of 40 m./sec. or above and lasts more than 24 hours. Special forms of clouds indicate the approach of "Sarma." *Subject Headings:* **Special winds, Sarma, Lake Baikal, Siberia.**

1908

2G–77 551.555.3(82)

Davis, Walter G., **Climate of the Argentine Republic.** Vol. 3. **1908.** tables, 44 plates. **DWB**—On p. 677–678 it is indicated that in the region of the Andes a hot and dry wind has been observed. It blows from N or NW and has the local name "Zonda." Plants are often burned by this wind which occurs most frequently in the spring. *Subject Headings:* **Special winds, Zonda, Argentina.**

1910

2G–78 551.553.11(4)

Heuer, W., **Über die Ursachen des Malojawindes.** [On the causes of Malojawind.] *Meteorologische Zeitschrift*, 27(11):480–488, **1910.** 2 figs. **DWB**—Malojawind is the valley wind of Oberengadin coming from Maloja pass (1800 m.) down to the flat, 1 km.-wide valley, which is bordered on both sides by high mountain ranges (1200 m. relative height). These conditions contribute to development of a local wind blowing from Maloja down the valley. Variations of meteorological elements during this wind are investigated and the causes of origin discussed. *Subject Headings:* **Special winds, Malojawind, Mountain and valley winds, Alps.**

2G–79 551.555.4(44)

Knoch, Karl, **Der Mistral Südfrankreichs.** [Mistral in southern France.] *Petermanns Geographische Mitteilungen*, 56:297–298, **1910.** 6 refs. **DWB**—The seasonal frequency of mistral with different wind velocity is discussed and the orographic influence emphasized. *Subject Headings:* **Special winds, Mistral, France.**

2G–80 551.555.3(436)

Pollak, Otto, **Der Föhn in Salzburg.** [The föhn in Salzburg.] Programm des (K.K.) Staats Gymnasiums in Salzburg. Salzburg, **1910.** p. 3–16. tables, plate. **DWB**—Characteristics and extent of föhn in the Salzburg region investigated and illustrated by some observational data and by the main outline of pressure distribution over the whole of Europe. *Subject Headings:* **Special winds, Föhn winds, Salzburg, Austria.**

2G–81 551.555.3(4)

von Ficker, Heinrich, **Innsbrucker Föhnstudien. 4. Weitere Beiträge zur Dynamik des Föhns.** [Föhn studies in Innsbruck. 4. Further contributions to föhn dynamics.] Vienna, **1910.** 66 p. 32 figs., tables, refs. **DWB**—The problem of the origin of föhn is the purpose of this investigation. Several föhn cases were analyzed in detail and the origin of descending air motion in föhn theoretically explained. *Subject Headings:* **Special winds, Föhn winds, Föhn theory, Alps.**

2G–82 551.555.3(4)

von Ficker, Heinrich, **Über die Entstehung der Föhnwinde auf der Nordseite der Alpen.** [On the origin of föhn winds on the northern side of the Alps.] *Meteorologische Zeitschrift*, 27(10):439–451, **1910.** 6 figs. **DWB**—Continuation of investigations started in 1904 in Innsbruck and North Tyrol. Different phases of föhn development are outlined. Comparative graphs of temperature variations at different stations are presented. *Subject Headings:* **Special winds, Föhn winds, Alps.**

1911

2G–83 551.555.3(71)

Stupart, R. F., **The chinook in southern Alberta and temperature inversions at Sulphur Mountain, Banff.** *Royal Society of Canada, Proceedings and Transactions*, 3rd Ser., 4(3):51–52, **1911.** table, 2 plates. Reprint available. **DWB**—A brief outline of chinook phenomena, conducive synoptic conditions, and accompanying temperature distribution. *Subject Headings:* **Special winds, Chinook winds, Föhn winds, Canada.**

2G–84 551.555.3(4)

von Ficker, Heinrich, **Absteigende Luftbewegung bei S-Föhn und N-Föhn.** [Descending air motion in S-föhn and N-föhn.] *Meteorologische Zeitschrift*, 28(4):177–182, **1911.** 2 figs. **DWB**—The origin and development of falling winds are different on both sides of the Alps. The S-föhn brings a greater temperature increase, whereas the N-föhn has more often the bora-like character. Schematic cross sections of S and N-föhn currents show great differences in the first stage. *Subject Headings:* **Special winds, Föhn winds, Alps.**

1912

2G–85 551.553.11(485)

*Grenander, Sven, **Über das Erscheinen der Seebrisen der schwedischen Ostküste.** [On the ppearance of sea breezes on the Swedish eastern coast.] Inaug. Diss.—Uppsala, **1912.** 97 p. 1 figs., map, 40 tables, 10 refs. **DWB**—A monograph of sea breezes on the eastern coast of Sweden ith a chart of coastal weather stations and ample tabulated data on wind. *Subject Headings:* **pecial winds, Land and sea breezes, Sweden.**

2G–86 551.555.3:551.555.4

Kassner, C., **Über einen Föhn in Bulgarien.** [On a föhn in Bulgaria.] *Meteorologische Zeitschrift*, 29(10):477–479, **1912.** 4 refs. **DWB**—General notes about the föhn and bora phenomena in Bulgaria are followed by a detailed description of a case of föhn observed by the author in January 912 in Sofia. *Subject Headings:* **Special winds, Föhn winds, Bora, Bulgaria.**

2G–87 551.555.3(4)

von Ficker, Heinrich, **Beobachtungen verticaler Luftbewegung bei Ballonfahrten in Gebirgen.** Observations of vertical air motion during balloon flights in the mountains.] *Meteorologische eitschrift*, 29(6):292–294, **1912.** **DWB**—The flight, in föhn conditions, of a balloon piloted by F. Miller is described and practical conclusions concerning the ballast regulation of flight over mountain anges are drawn. Schematic cross sections are presented. *Subject Headings:* **Special winds, Föhn inds, Alps.**

1913

2G–88 551.555.3(436)

Conrad, V., **Föhn in Klagenfurt.** [Föhn in Klagenfurt.] *Meteorologische Zeitschrift*, 30(11): 57–558, Nov. **1913.** 2 tables, 3 refs. **DLC**—The local wind "Jauk" in the Klagenfurt basin is dentified as föhn. It is shown that "Jauk" comes from a northerly or southerly direction and is at imes very intense. *Subject Headings:* **Special winds, Föhn winds, Jauk winds, Austria.**

2G–89 551.555.4(262)

§Marakovi̇c, Milan, **Studien über die Bora.** [Bora studies.] *Zur Kunde der Balkanhalbinzel. . Reisen und Beobachtungen*, Heft 18, Sarajevo, **1913.** 39+p. 18 charts, tables, 12 refs. **DLC**—urvey of wind conditions on the eastern coast of the Adriatic Sea is followed by a detailed description f bora on the basis of synoptic charts. Classification of bora weather situations and presentation f three bora weather types exemplified by synoptic charts concludes the article. *Subject Headings:* **pecial winds, Bora, Adriatic Sea.**

2G–90 551.555.3

Pockels, R., **Zur theoretischen Berechnung der Temperaturverteilung in der freien Atmosphäre ei Föhn.** [On the theoretical computation of temperature distribution in the free atmosphere uring föhn.] *Meteorologische Zeitschrift*, 30(5):216–222, May **1913.** 2 figs., 2 refs., 11 equations. **DLC**—Mathematical treatment of the problem. Equations for computation of air stream lines t different altitudes are suggested. *Subject Headings:* **Special winds, Föhn theory.**

2G–91 551.555.3(436)

von Ficker, Heinrich, **Ballonaufstiege bei Föhn.** [Balloon ascents during föhn.] *Meteorogische Zeitschrift*, 30(5):213–216, May **1913.** 2 refs. **DLC**—Results of several balloon ascents ade in Innsbruck were analyzed and some conclusions derived showing the föhn current, the terination of the föhn, and the vertical motion of air during this phenomenon. *Subject Headings:* **pecial winds, Föhn winds, Aerological studies, Austria.**

2G–92 551.555.3(4)

von Ficker, Heinrich, **Die Wirkung der Berge auf Luftströmungen.** [The effect of mountains n air currents.] *Meteorologische Zeitschrift*, 30(12):608–610, Dec. **1913.** 4 figs. **DWB**—Referring o the instructive report by Dr. Wegener, the author discussed and rejected the assertion hat mountains disturb the atmospheric flow to a height of only 200 m. above their tops. Examples f balloon flights in föhn conditions over Karwendel ridge are presented proving that disturbances aused by the mountains are still perceptible at 1000 m. and 1500 m. above. *Subject Headings:* **pecial winds, Föhn winds, Alps.**

2G–93 551.555.3(436)

Wergosta, Karl, **Föhn in den Ostalpen.** [Föhn in the eastern Alps.] *Meteorologische Zeitschrift*, 30(4):196–198, April, **1913.** **DLC**—A brief description of föhn phenomena in Spital on the

northern side of the pass between Bosruck (2000 m.) and Warschenck (2300 m.), which is believed to be the extreme eastern limit of föhn in the Alps. *Subject Headings:* **Special winds, Föhn winds, Austria.**

1914

2G–94 551.555.3(234.3)

†Deschmann, Rudolf, **Der Föhn in den Alpen. Seine Entstehung und seine meteorologischen Eigenschaften.** [The föhn in the Alps, its origin and meteorological properties.] *Vienna, (K.K.) Carl Ludwig-Gymnasium, Jahresberichte,* 31, **1914.** 42 p. 6 figs., 153 refs. Reprint available. **DWB**—Brief historical review on the development of föhn theory and further contributions explaining the origin, characteristics and extent of this phenomenon as well as its effects on nature and man. *Subject Headings:* **Special winds, Föhn theory, Alps.**

2G–95 551.555.4(44)

Gazand, M., **Contribution à l'étude du mistral.** [Contribution to the study of the mistral.] *Académie des Sciences, Paris, Comptes Rendus,* 159:335–336, **1914. DWB**—Several conclusions derived from discussion of meteorological situations during 1911–1913 regarding the characteristics of the mistral. *Subject Headings:* **Special winds, Mistral, Provence, France.**

1915

2G–96 551.553.11(46)

Fontseré, Eduard, **Desarrollo de la brisa marina en el litoral de Barcelona.** [Development of the sea breeze in the Barcelona region.] (*R.*) *Academia de Ciencias y Artes de Barcelona, Memorias,* Tercera época, 11(26):3–4, **1915.** 5 plates. **DWB**—A brief essay on sea breezes based on observations made at the Fabra Observatory and illustrated by graphic presentations of diurnal variation of humidity and wind velocity during several periods of pronounced sea breezes. *Subject Headings:* **Special winds, Land and sea breezes, Barcelona, Spain.**

1917

2G–97 551.555.3:551.555.3(98)

Rempp, G. and Wagner, A., **Die Hydrodynamik des Föhns und die "lokalen winde" in Spitzbergen.** [Hydrodynamics of the föhns and "local winds" in Spitsbergen.] *Deutsches Observatorium Ebeltofthafen-Spitzbergen, Veröffentlichungen,* Vol. 7, **1917.** 12 p. 2 tables, refs. Reprint available. **DWB**—Hydrodynamic conditions of föhn and bora are described, and the local winds in fiords open to N and W are analyzed. The conclusion is drawn that in autumn and winter those local winds are developed in strict accordance with the dynamic conditions of föhn as interpreted by R. WENGER. *Subject Headings:* **Special winds, Föhn winds, Spitsbergen.**

2G–98 551.555.3(56)

†Rudovits, L., **Fenoobraznye vetry v Trapezonde.** [Föhn-like winds in Trabzon.] *Meteorologicheskiĭ Vestnik,* (8–10):181–186, **1917.** 2 figs., 3 tables. **DWB**—General description of geographical and synoptic conditions contributing to the extent of föhn winds in the Caucasus. A rare case of föhn wind observed in Trabzon when temperature rose 14°C and relative humidity dropped 40% in 10 to 15 minutes on March 29, 1917. Tables of observations and charts of thermograph and hygrograph are presented. *Subject Headings:* **Special winds, Föhn winds, Trabzon, Turkey.**

1919

2G–99 551.555.8(569.4)

Georgii, Walter, **Scirocco Beobachtungen in südwestlichem Teile Palästinas.** [Observations of sirocco in southwestern Palestine.] *Meteorologische Zeitschrift,* 36(7–8):193–197, July–August, **1919.** 4 tables. **DLC**—Personal observations of siroccos are reported. Some records of temperature, relative humidity, and wind direction and velocity kept. No thorough explanation claimed. (*Same item* as No. 2E–59 in May 1951 *Meteorological Abstracts.*) *Subject Headings:* **Special winds, Sirocco, Palestine.**—*H.P.K.*

2G–100 551.555.6(72)

Grogan, S. A., **Northers on the east coast of Mexico, their effect and forecast by local observations.** *Monthly Weather Review,* 47(7):468–471, July **1919.** 2 figs., tables. **DWB**—Disasters caused by strong northers are cited. Detailed investigations of this phenomenon and conducive synoptic situations were carried out and a certain method of forecasting evolved. *Subject Headings:* **Special winds, Northers, Mexico.**

2G–101 551.555.3(72)

Grogan, S. A., **Hot winds in Tampico, Mexico, April 6 and 7, 1919.** *Monthly Weather Review,* 47(4):234, April **1919.** table. **DWB**—Description of a hot, dry, southwesterly wind which raised

ıe temperature to the absolute maximum (99°F.) for April. Records of meteorological elements re given and the causes of this föhn-like phenomenon are considered. *Subject Headings:* **Special inds, Föhn winds, Gulf of Mexico.**

2G–102 551.553.11

Hann, F., **Ueber die Theorie der Berg- und Talwinde.** [On the theory of mountain and valley inds.] *Meteorologische Zeitschrift*, 36(9–10):287–289, Sept.–Oct. **1919. DLC**—Discussion of ORSCHALL's theoretical statements concerning the origin and nature of mountain and valley winds. ome proof is given of their interrelation. *Subject Headings:* **Special winds, Mountain and valley inds.**

2G–103 551.555.3(436)

Hann, J., **Föhnsturm in Salzkammergut zu Ischl anfangs Januar 1919.** [Föhn storm in Salzammergut on Ischl during early January 1919.] *Meteorologische Zeitschrift*, 36(7–8):233, July–ug. **1919.** table. **DLC**—Brief description of a hurricane-like föhn storm which extended over the hole upper Austrian Salzkammergut. *Subject Headings:* **Special winds, Föhn storms, Austria.**

2G–104 551.553.11(495)

Zinger, F., **Der See-und Landwind zu Burgas.** [Sea and land wind at Burgas.] *Meteorogische Zeitschrift*, 36(3–4):93–95, March–April **1919. DLC**—Influence of sea and land winds on loudiness, temperature conditions and pressure. Some characteristics of speed and vertical extent re given in figures. *Subject Headings:* **Special winds, Land and sea breezes, Greece.**

1920

2G–105 551.555.3:551.553.12

Humphreys, William Jackson, **Physics of the air.** Philadelphia, Franklin Institute of the tate of Pennsylvania, **1920.** 665 p. numerous figs., tables, refs., equations. **DLC**—On p. 217–218 ıe definitions of Malojawind, föhn and chinook winds with theoretical explanations are given.)n p. 106–117 the sea and mountain winds and the glacier winds are treated theoretically. On p. 18–122 explanations of the phenomena of bora, mistral and Norwegian fallwinds occurring in inter along the northwest coast are presented. *Subject Headings:* **Special winds, Föhn theory, Mountain and valley winds, Land and sea breeze theory.**

2G–106 551.555.9(4)

Knoch, Karl, **"Maozagotls" Wetterwolke über dem Hirschberger Tale im Riesengebirge und ıre prognostische Bedeutung.** [The "Maozagotl" weather cloud over Hirschberg valley in the Liesen Gebirge and its prognostic importance.] *Meteorologische Zeitschrift*, 37(9):266–267, Sept. **920. DWB**—Formation of standing clouds occurs when an air stream flows over the mountains t a considerable speed and results in a whirl with horizontal axis on the leeward side of the range. Lising above the condensation level, this whirl becomes visible by cloud formation. Some examples f such clouds are described and the prognostic importance of the Moazagotl cloud is discussed. *ubject Headings:* **Special winds, Maozagotl winds, Riesen Gebirge, Germany.**

2G–107 551.555.3(436)

Prohaska, Karl, **Grosse Niederschlagsmengen in Kärnten während des (trockenen) Föhnturmes Anfang Januar 1919 im Salzkammergut.** [Great amounts of precipitation in Carinthia uring the (dry) föhn storm of early January 1919 in Salzkammergut.] *Meteorologische Zeitschrift*, 7(3–4):95–96, March–April **1920.** 2 refs. **DLC**—A brief note on the bad weather conditions nd snow cover which reached 1.75 m. during the föhn in Gaital. *Subject Headings:* **Special winds, föhn winds, Austria.**

2G–108 551.555.8(569.4)

Späth, W., **Die Sciroccos der Sinaiwüste.** [The siroccos of the desert of Sinai.] *Meteorologische Zeitschrift*, 37:26–29, **1920.** 5 figs., ref. **DWB, NNA**—Description of this phenomenon is iven, and causes, topographical and meteorological, are suggested. (*Same item* as No. 2E–69 in May 1951 *Meteorological Abstracts.*) *Subject Headings:* **Special winds, Sirocco, Föhn winds, Egypt.**—*I.P.K.*

1921

2G–109 551.555.12

Kleinschmidt, E., **Zur Theorie der Talwinde.** [On the theory of valley winds.] *Meteorologische Zeitschrift*, 38(2):43–46, Feb. **1921.** 4 refs. Remarks by J. Hann attached. **DLC**—An ssay on HANN's theory of valley winds. Former concepts which cited the warming of air masses in he mountains as the main cause of valley winds are verified. *Subject Headings:* **Special winds, Mountain and valley winds, Alps.**

1922

2G–110 551.555.3:551.555.4:551.555.9

Castens, Gerhard, **Neuere englische Bezeichnungen für Windarten.** [New English classification for wind types.] *Annalen der Hydrographie und Maritimen Meteorologie*, 50(7):206–209, July **1922.** 2 figs., 8 refs., 3 equations. **DLC**—Classification of all kinds of winds with brief explanation of their names and natures. *Subject Heading:* **Special winds.**

2G–111 551.553.11:551.553.12:551.555.3

Jeffreys, Harold, **On the dynamics of wind.** *Royal Meteorological Society, Quarterly Journal* 48(201):29–46, **1922.** 5 refs., 20 equations. Summary p. 48. **DWB**—This is the first attempt to treat the problem in an exact way. The author considered the land and sea breezes as a form of antitriptic wind. The only forces taken into account are the two due to friction and to the pressure gradient resulting from the unequal heating. He discusses here the relative importance of the various relevant physical factors in determining the character of each type of wind and gives a classification of winds based on dynamic principles. *Subject Headings:* **Special winds, Land and sea breezes, Mountain and valley winds.**

2G–112 551.553.11(922)

van Bemmeln, W., **Land- und Seebrise in Batavia.** [Land and seabreeze in Batavia.] *Beiträge zur Physik der freien Atmosphäre*, 10(2–3):169–177, Aug. **1922.** 5 tables. **DWB**—On the basis of aerological observations made by the observatory in Batavia, the circulation of the daily sea breeze and its development in horizontal and vertical direction is presented. *Subject Headings:* **Special winds, Land and sea breezes, Batavia, Indonesia, Java.**

1923

2G–113 551.555.4(48)

Köppen, W., **Die Bora im nördlichen Skandinavien.** [Bora in northern Scandinavia.] *Annalen der Hydrographie und Maritimen Meteorologie*, 51(4):97–99, April **1923.** **DLC**—Explanation and graphic presentation of the bora phenomenon in general, and description of the bora at Balsfiord near Tromsö. *Subject Headings:* **Special winds, Bora, Scandinavia.**

2G–114 551.555.3:551.555.6(73.9)

Ward, Robert DeCourcy, **Hot waves, hot winds and chinook winds in the United States.** *Scientific Monthly*, 17(2):146–167, Aug. **1923.** 2 figs., 21 refs. Reprint available. **DWB**—On pp. 156–167 the hot winds of the plains and different local winds with various names are described, their effects characterized and their original properties discussed. Favorable weather situations are outlined. *Subject Headings:* **Special winds, Chinook winds, Northers, United States.**

2G–115 551.555.6(76)

Ward, Robert DeCourcy, **Cold waves, northers and blizzards in the United States.** *Scientific Monthly*, 16(5):449–470, May **1923.** 9 figs., 20 refs. Reprint available. **DWB**—On p. 466–468 the chapter entitled **The Texas "Norther"** gives general discription and theoretical explanation of this cold wind which causes a rapid drop of temperature. It is recognized as a local designation of cold wave phenomena. The dominant condition is one of north-south gradients from the cold northern interior to the warm Gulf of Mexico. When this condition is intensified by the presence of an especially marked cold wave, an anticyclone over the northern plains or a cyclonic storm crossing the western Gulf region, the north winds may come down from the plateaus with great velocity. *Subject Headings:* **Special winds, Northers, Texas, United States.**

2G–116 551.553.12

Wenger, R., **Zur Theorie der Berg- und Talwinde.** [On the theory of mountain and valley winds.] *Meteorologische Zeitschrift*, 40(7):193–204, July **1923.** 15 refs., 2 equations. **DWB**—Detailed review and discussion of previous theories of mountain and valley wind phenomena with some theoretical contributions to this problem. *Subject Headings:* **Special winds, Mountain and valley wind theory.**

1925

2G–117 551.553.11:551.553.12:551.555.3(93)

Braak, C., **Het klimaat van Nederlandisch-Indië.** [The climate of Indonesia.] Vol. 1, Pt. 2, (General chapters). *Indonesia, (K.) Magnetisch en Meteorologisch Observatorium te Batavia, Verhandelingen*, (8):83–97, **1925.** 5 tables, 5 refs. English summary in Vol. 1, Pt. 8, 1925. p. 25–32. **DLC**—General discussion of land and sea, mountain and valley winds, and the local föhn-like winds of different names existing in this territory. Strong development of local winds is due to the deviations from the general monsoon current caused by the intense insolation and the mountainous character

the country. The prominence of this deviation is also due to the feeble pressure differences by hich the monsoons are driven on. Near the coast, the land and sea breezes have a strong influence. n the mountains, the down valley wind is stronger than the up-valley day current. *Subject Head-gs:* **Special winds, Land and sea breezes, Mountain and valley winds, Indonesia.**

2G–118 551.555.9:551.553.11(93)

*Braak, C., **Het klimaat van Nederlandisch-Indie.** [The climate of Indonesia.] Vol. 2, Pt. 1, **umatra.** *Indonesia, (K.) Magnetisch en Meteorologisch Observatorium te Batavia, Verhandelingen*):1–150, **1925.** 1 fig., tables, refs., map. English summary in Vol. 2, Pt. 3, 1929. p. 1–67. **DLC** -On p. 150–152 of text and p. 65–66 of summary some data are given about the forced ascent of the r and the föhn effect in Sumatra. Statistics of the rainfall in "Bohorok" days show the effect of the ɔward deflection of the air on the windward side of the Borisan range and the descending movement n the leeward side on the formation of rain. On p. 54–80 of text and p. 24–28 of summary, a escription of the local wind "Bohorok" and the region of its occurrence is given. *Subject Headings:* **pecial winds, Bohorok, Land and sea breezes, Sumatra.**

2G–119 551.555.4(44)

Faucher, M. M. and Rougetet, E., **Contribution à l'etude du mistral.** [Contribution to the udy of Mistral.] *Académie des Sciences, Paris, Comptes Rendus,* 181:323–326, 31 Aug. **1925. WB**—Characteristics of mistral and hypotheses for explanation of this wind. Continued in *ibid.*, 31:614–615, 7 March 1927. *Subject Headings:* **Special winds, Mistral, Rhone valley, France.**

2G–120 551.553.11(47)

Molchanov, P. A., **Brizen in der Krim (Feodossia).** [Breezes in Crimea (Feodosiya).] *Me-orologische Zeitschrift,* 42(1):28–29, **1925. DWB**—Brief description of the conditions and frequency f breezes in the Feodosiya area. Vertical extent investigated. *Subject Headings:* **Special winds, and and sea breezes, Crimea.**

2G–121 551.555.4(44)

Rougetet, E., **Le mistral.** [The mistral.] *La Météorologie,* No. 16:23–30, **1925. DWB**— general treatise on the mistral in South France. Relation to the circulation of the atmosphere. nalysis of meteorological elements during mistral. Some theoretical considerations. *Subject eadings:* **Special winds, Mistral, France.**

2G–122 551.555.8(6)

Sutton, L. J., **Haboobs.** *Royal Meteorological Society, Quarterly Journal,* 51(213):25–30, **1925. WB**—Statistics and description of a typical phenomenon occurring in the Sudan. These dense asses of whirling sand, accompanied by strong wind, are known as haboobs and are associated rticularly with the rainy season, May–Oct. A discussion by H. G. Lyons is added in which he ggests limiting the name to the small circular storms which traverse these regions and are evidently ore frequent in periods of atmospheric instability. *Subject Headings:* **Special winds, Haboobs, hartoum, Sudan.**

2G–123 551.555.4(98)

Vize (Wiese), V. I., **Novozemel'skaia bora.** [Bora in Novaya Zemlya.] *Tsentral'noe idromet. Biuro, Izvestiia,* No. 5, **1925.** figs., charts, graphs. **DPL**—Detailed analysis of bora nenomena, conditions of origin, variation of meteorological elements and climatological importance, *Same item* as 3–89 in March 1950 *Meteorological Abstracts.*) *Subject Headings:* **Special winds, Bora. ovaya Zemlya, Arctic.**—*N.R.*

1926

2G–124 551.555.9(57)

Shostakovich, V. B., **Vetry ozera Baĭkal.** [The winds of Lake Baikal.] *Klimat i Pogoda,* No. 36, **1926. DWB**—An outline of frequent, strong winds at some places along the Baikal coast hich are local phenomena conditioned by the structure of the coast and bear no relation to the yclonic activity of the atmosphere. *Subject Headings:* **Special winds, Lake Baikal, Siberia.**

1927

2G–125 551.555.4(44)

Berjoan, M., **Sur un cas remarquable de mistral (4 au 8 mars 1926) à Marseille.** [On a remark-ble case of mistral (March 4–8, 1926) in Marseille.] *La Météorologie,* No. 3:215–217, **1927. DWB**— leteorological characteristics of a rare phenomenon of mistral in Provence. *Subject Headings:* **pecial winds, Mistral, Provence, France.**

2G–126 551.555.4(44)

Galzi, M., **Le mistral à Nimes.** [The mistral in Nimes.] *La Météorologie*, No. 3:213–214, 1927. 4 figs. **DWB**—Brief characteristics of mistral at the foot of the Cévennes. Frequency calculated for period 1921–1925. Duration of the periods with mistral totalled 24 days in January of 1923. Diurnal variations of velocity are given in graphs. *Subject Headings:* **Special winds, Mistral, Cévennes, France.**

1928

2G–127 551.553.12:551.555.3(922)

*Braak, C., **Het klimaat van Nederlandisch-Indie.** [The climate of Indonesia.] Vol. 2, Pt. 2, **Java and Madoera.** *Indonesia*, (*K.*) *Magnetisch en Meteorologisch Observatorium te Batavia, Verhandelingen*, (8):159–399, **1928.** figs., map, tables. English summary in Vol. 2, Pt. 3, 1929. p. 69–185. **DLC**—Names and characteristics of local winds are given on p. 72–77. Mountain and valley winds are discussed on p. 77–80 of the summary. *Subject Headings:* **Special winds, Föhn winds, Mountain and valley winds, Java.**

2G–128 551.555.4(479)

*Shantkhaĭ-Liubimov, B., **K Novorossiĭskoĭ bore. Nekotorye resul'taty sharo-pilotnykh nabliudeniĭ.** [On the bora in Novorossisk. Some results of pilot balloon observations.] *Meteorologicheskiĭ Vestnik*, 38(1):17–21, Jan. **1928.** 3 figs., 3 tables, 3 refs. **DWB**—Aerological observations made in Markhotskiĭ Pereval in the saddle of a steep mountain ridge named "Varada" at a height of 435.5 m. above sea level gave some data for the qualitative characteristics of the local phenomena of bora. They showed that the effect of the various disturbing factors do not extend above a relatively low level and that the vertical angles observed with a theodolite drop rapidly at the beginning, giving at times even negative values. Further on, the balloon gets into the air current reflected from the sea surface and starts to jump higher. After this the angles change slowly. A scheme shows the process of air drop from mountains to the harbor and reflection by the sea level. *Subject Headings:* **Special winds, Bora, Aerological studies, Novorossisk, U.S.S.R.**

1929

2G–129 551.553.11:551.555.9(911)

*Braak, C., **Het klimat van Nederlandisch-Indië.** [The climate of Indonesia.] Vol. 2, Pt. 3. **The archipelago, without Sumatra and Java.** *Indonesia*, (*K.*) *Magnetisch en Meteorologisch Observatorium te Batavia, Verhandelingen* (8):401–540, **1929.** figs., map, tables. English summary p. 187–196. **DLC**—The local föhn-like winds in Borneo near Pengaron are mentioned on p. 188. Land and sea breezes prevailing on the east coast are described on p. 189. The land and sea breezes on Celebes, and föhn-like wind named "broeboe" are described on p. 197–198. *Subject Headings:* **Special winds, Land and sea breezes, Föhn winds, Borneo, Celebes.**

2G–130 551.555.4(46)

Fontserè, Eduard, **Die "Llevants" der Katalonischen Küste.** [The "Llevants" of the Catalonian Coast.] *Beiträge zur Physik der freien Atmosphäre*, 15:55–60, **1929.** 5 figs. **DWB**—NE winds coming from Alps down to the Mediterranean Coast between Valencia and Rousillon, some times stormy and dangerous for ships, are studied. Synoptic situations and aerological conditions conducive to this phenomena are exemplified, and some hints as to certain norms for forecasting are given. *Subject Headings:* **Special winds, Levantes, Spain.**

1930

2G–131 551.555.4(262)

§Bénévent, E., **Bora et Mistral.** [Bora and Mistral.] *Annales de Géographie*, Paris, 39(219): 286–298, **1930.** 2 figs., 7 refs. **DWB**—Comparative study of the origin of bora and mistral considering three types: cyclonic, anticyclonic and mixed. Characteristic pressure distributions are given on charts. *Subject Headings:* **Special winds, Bora, Mistral, Mediterranean.**

2G–132 551.555.4(45)

Charli, M. P., **Les vents de tramontane aux diverses altitudes à la base d'hydravions de Vigna de Valle. Resumé de l'étude de Filippo Eredia.** [Tramontana winds at various altitudes at the sea plane base of Vorginia de Valle. Summary from the study of Filippo Eredia.] *La Météorologie*, 6(64–66):386–390, July–Sept. **1930.** 4 tables, ref. **DWB**—The winds named tramontana blow along the Italian peninsula, entering from the N or NE, and bring about a rapid drop of temperature. The author presents some meteorological characteristics of these phenomena taken from the work of Filippo Eredia published in *Rivista Aeronautica*, 5(12), Dec. 1929. *Subject Headings:* **Special winds, Tramontana, Italy.**

2G–133 551.555.3:551.553.11(8)

†Knoch, K., **Klimakunde von Südamerika.** [Climatology of South America.] *Handbuch der Klimatologie*, Band II, Teil G. Berlin, **1930.** 41 figs., 18 tables, 570 refs. **DWB**—In the chapters entitled **Wind force, Storm phenomena** and **Local winds** on p. 55–60, the author described the local winds in South America and cited their names. *Subject Headings:* **Special winds, Zonda, Land and sea breezes, South America.**

2G–134 551.555.8(262)

Musacchia, Fausto, **Ricerche sul clima di Palermo. Lo Scirocco.** [Investigation of the climate of Palermo. The Sirocco.] Palermo, La Commerciale, Sept. **1930.** 93 p. tables, refs. **DWB**—Monograph on sirocco phenomena in Palermo. Description and meteorological characteristics with some tabulated data of various elements and the effect of sirocco on visibility and vegetation. The origin and possibility of forecasting are discussed. *Subject Headings:* **Special winds, Sirocco, Palermo.**

2G–135 551.555.4(44)

Rougetet, E., **L'ouragan de mistral du 28 février 1929.** [A stormy mistral on February 28, 1929.] *La Météorologie*, 6(64–66):329–340, July–Sept. **1930.** 10 figs., 2 tables, ref. **DWB**—A case of strong mistral is analyzed. Meteorological observations of 6 stations are evaluated and aerological sounding at Montelimar reaching 1000 m. is used for showing the wind direction and velocity in different layers. Isobaric situation and vertical schemes of the process are presented. *Subject Headings:* **Special winds, Mistral, Rhone valley, France.**

2G–136 551.555.4(44)

†Rougetet, E., **Le mistral dans les plaines du Rhône moyen, entre Bas-Dauphiné et Provence.** The Mistral on the plains of the middle Rhone, between Bas-Dauphiné and Provence.] *La Météorologie*, 6(64–66):341–385, July–Sept. **1930.** 37 figs., 3 tables, 21 refs. **DWB**—An extensive and detailed study of mistral on the plains of the Rhone presenting a great deal of elaborately developed meteorological characteristics of this phenomenon. Isobaric and thermal situations, frequency and duration of mistral, its effects and schematic cross sections of the local air circulation are presented. Some hypotheses for the causes of this local wind are suggested. *Subject Headings:* **Special winds, Mistral, Rhone valley, France.**

2G–137 551.555.3(988)

Schneider, Leonard R., **Greenland, West Coast Foehns.** *Monthly Weather Review*, 58(4):135–138, April **1930.** 4 figs., table, 2 refs. **DWB**—Three cases of föhn in January 1929 are analyzed, showing that the place of origin, development and course of the lows were important points in determining the strength of the Greenland föhns. Influence of the lows of Davis Strait is outlined. *Subject Headings:* **Special winds, Föhn winds, Davis Strait, Greenland.**

2G–138 551.555.3(494)

Streiff-Becker, R., **Altes und Neues über den Glarner-Föhn.** [Old and new thoughts regarding the Glarus föhn.] *Naturforschende Gesellschaft des Kantons Glarus, Mitteilungen*, Glarus, **1930.** 2 p. 11 figs., 33 tables, 13 refs. Reprint available. **DWB**—A comprehensive study of the origin, development and characteristics of föhn in Glarus compared with other places. The föhn is described as a consistent process occurring throughout the cross section Tessin-Glarus-Gaster (Zürich-See-Tal-Basel). An important theoretical contribution. *Subject Headings:* **Special winds, Föhn winds, Switzerland.**

2G–139 551.555.3

†Schmitt, Wilhelm, **Föhn Erscheinungen und Föhngebiete.** [Föhn phenomena and föhn areas.] *Deutscher und Österreichischer Alpenverein, Wissenschaftliche Veröffentlichungen*, 8, Innsbruck, **1930.** 4 p. 26 figs., 1 map, 88 refs. **DWB**—Extensive and detailed study of föhn phenomena and their theoretical foundations. Different föhn types are described and the local names of föhn winds are cited. Geographical distribution of föhn areas over the whole globe is shown on a map (except the West Beskides—Carpathians). *Subject Headings:* **Special winds, Föhn winds, Föhn theory.**

1931

2G–140 551.555.3(54)

Atmanathan, S., **The katabatic winds of Poona.** *India, Meteorological Dept., Scientific Notes*, (40):101–105, **1931.** 2 figs., 2 plates, 8 tables, 14 refs., equation. **DWB**—Based on records of anemograph at the observatory of the Meteorological Office, this paper gives the results of a study of nocturnal katabatic winds in Poona. The nature and duration of these winds are different for

the SW and NNW directions. Certain characteristics of katabatic winds and associated changes of pressure and temperature are discussed. *Subject Headings:* **Special winds, Poona, India.**

2G–141 551.553.11:551.553.12(54)

†Braak, C., **Klimakunde von Hinterindien und Insulinde.** [Climatology of Further India and Insulinde.] *Handbuch der Klimatologie*, Band 4, Teil R. Berlin, **1931.** 29 maps, 2 diagrs., 20 tables, 37 refs. **DWB**—On p. 27 the mountain and valley winds, and the land and sea breezes are described. *Subject Headings:* **Special winds, Mountain and valley winds, Land and sea breezes, India.**

2G–142 551.553.12(922)

Braak, C., **Der Talwind.** [The valley wind.] *Beiträge zur Geophysik*, 32(1):83–86, **1931.** table, 3 refs. **DWB**—Some contributions to the valley wind theory based on data obtained in the tropical zone. Indications about the origin of the valley wind on the upper slopes are given. *Subject Headings:* **Special winds, Mountain and valley wind theory, Java.**

2G–143 551.553.12(4)

*Ekhart, E., **Zur Aerologie des Berg- und Talwindes.** [Aerology of the mountain and valley winds.] *Beiträge zur Physik der freien Atmosphäre*, 18(1):1–26, **1931.** 6 figs., table, 10 refs. German summary p. 21–26. **DWB**—Thorough aerological investigation based on data obtained by 103 pilot balloon ascents made during an 11-day period in the Inn valley. Wind velocity isopleths, showing distribution in time and space, were drawn and characteristics of development were given. Seasonal variations of the mountain and valley winds were described and the upper limit of their extent outlined. *Subject Headings:* **Special winds, Mountain and valley winds, Aerological studies, Innsbruck, Austria.**

2G–144 551.555.3(436)

Kanitscheider, Rudolf, **Beiträge zur Mechanik des Föhns. Ergebnisse von Doppelvisierungen in Innsbruck und Umgebung.** [Contributions to the mechanics of föhn. Results of double theodolite observations in and around Innsbruck.] *Beiträge zur Physik der freien Atmosphäre*, 18(1):27–49, **1931.** 8 figs., 11 tables, 3 refs. **DWB**—Aerological study of föhn currents by means of 77 pilot balloon ascents observed from two points. Investigation of the effect of barriers on definite air currents and the distribution of the horizontal wind component were the main points of this work. *Subject Headings:* **Special winds, Föhn theory, Aerological studies, Innsbruck, Austria.**

2G–145 551.555.3

Koschmieder, H., **Leewirbel und Föhn.** [The lee eddy and the föhn.] *Meteorologische Zeitschrift*, 48(6):229–230, June **1931.** **DWB**—Referring to A. WEGENER'S "Thermodynamics of the atmosphere," the author discusses this problem: what makes the air flow down, close to the slope along the leeward side of the mountains during föhn, instead of forming the usual whirl with a horizontal axis. *Subject Headings:* **Special winds, Föhn theory.**

2G–146 551.555.3(73.9)

Loveridge, E. F., **A hot wind in Hawaii.** *American Meteorological Society, Bulletin*, 12(8–9):136–137, Aug.–Sept. **1931.** **DLC**—Exceptional case of an extremely hot and strong local wind limited to the southeastern side of Mauna Loa. Extremely high temperature was recorded (100°F.). *Subject Headings:* **Special winds, Föhn winds, Mauna Loa, Hawaiian Islands.**

2G–147 551.553.11(54)

Ramanathan, K. R., **The structure of the sea breeze at Poona.** *India, Meteorological Dept. Scientific Notes*, 3(30):131–134, **1931.** 9 plates. **DWB**—Preliminary study of the structure of the sea breeze. Observations of special pilot balloons were compared with the autographic records at the surface, and it was found that the sea breeze has the characteristics of a cold front. The thickness of the breeze is usually 1–1.5 km. The existence of a return current, not influenced by other prevailing winds above the sea breeze, has been shown. *Subject Headings:* **Special winds, Land and sea breezes, Aerological studies, Poona, India.**

2G–148 551.553.11(54)

Ramdas, L. A., **The sea-breeze at Karachi.** *India, Meteorological Dept., Scientific Notes*, 4(41):115–124, **1931.** 6 plates, 11 tables, 3 refs. **DWB**—Statistical data and typical instances of sea breeze are discussed. Data obtained by special surface and pilot balloon observations are evaluated. The thickness of the sea breeze on a few occasions computed according to HUMPHREYS' theory has been shown to agree fairly well with observed values. *Subject Headings:* **Special winds, Land and sea breeze theory, Karachi, India.**

2G–149 551.553.12

Schmauss, A., **Zur Entstehung der Tal- und Bergwinde.** [The origin of valley and mountain winds.] *Meteorologische Zeitschrift*, 48(12):511–512, Dec. **1931.** 6 figs., 3 refs. **DWB**—Discussion of HANN's and WENGER's theories. The recent investigations of air currents are considered as very useful for the explanation of valley winds. *Subject Headings:* **Special winds, Mountain and valley winds, Malojawind.**

2G–150 551.555.3(4)

Streiff-Becker, R., **Zur Dynamik des Föhns.** [On föhn dynamics.] *Meteorologische Zeitschrift*, 8(4):149–152, **1931.** 3 figs. **DWB**—Analysis of air circulation during föhn, and classification of föhn phenomena according to the synoptic conditions in different parts of Alps. *Subject Headings:* **Special winds, Föhn winds, Alps.**

2G–151 551.555.3

von Ficker, Heinrich, **Warum steigt der Föhn die Täler herab?** [Why does the föhn descend the valleys?] *Meteorologische Zeitschrift*, 48(6):227–229, June **1931. DWB**—Discussion of föhn theory with reference to STREIFF-BECHER's paper (*ibid.*, 48(4):149–152, April 1931) rejecting WILD's theories. *Subject Headings:* **Special winds, Föhn theory.**

1932

2G–152 551.555.3(436)

*Ekhart, E., **Einiges zur Statistik des Innsbrucker Föhns.** [Contribution to statistics of the Innsbruck Föhn.] *Meteorologische Zeitschrift*, 49(12):452–459, Dec. **1932.** tables, 5 refs. **DWB**—Föhn frequency computed for the period 1916–1930, and the secular oscillations shown. Results compared with PERTNER's data. The close relation of föhn frequency with the pronounced activity of general air circulation is once more confirmed. *Subject Headings:* **Special winds, Föhn statistics, Innsbruck, Austria.**

2G–153 551.555.8

Eredia, F., **Lo scirocco in Italia.** [Sirocco in Italy.] *Annali del Ufficio Presagi*, Rome, 5:155–72, **1932. DWB**—On the basis of aerological observations in Italy, the author established 4 types of sirocco differing in wind velocity at various altitudes. The appearance, frequency and duration of this phenomenon were investigated for all seasons of the year. Review in *Meteorologische Zeitschrift*, 52(4):190–191, April 1935. *Subject Headings:* **Special winds, Sirocco, Italy.**

2G–154 551.555.8(47)

Iarovitskiĭ, V., **Opisanie "Afgantsa" 18 iiunia 1931 goda v g. Stalinabade Tadzhikskoĭ SSR.** [Description of "Afganets" on June 18, 1931 in Stalinabad, Tadzhik SSR.] *Klimat i Pogoda*, No. 5–6:88–92, **1932.** 3 tables. **DWB**—Characteristic of a local, strong and dusty wind is given and illustrated by meteorological observations made in Stalinabad. *Subject Headings:* **Special winds, Afganets, Stalinabad, Tadzhik S.S.R.**

2G–155 551.553.11

Kobayasi, Tatuo and Sasaki, Tatuodiro, **Über Land- und Seewinde.** [On land and sea winds.] *Beiträge zur Physik der freien Atmosphäre*, 19:17–21, **1932.** 3 figs., 4 equations. **DWB**—Schematic exposition of land and sea winds with a mathematical solution of the problem as a two-dimensional one. Considering the discontinuity of temperature on the ground as the cause of the motion of fluid, the author atempts to give a qualitative characteristic of development of this phenomenon. *Subject Headings:* **Special winds, Land and sea breeze theory.**

2G–156 551.555.3(4)

Kosiuska-Bartnicka, S., **Föhnerscheinungen im Tatragebirge.** [Föhn phenomena in the Tatra Mountains.] *Meteorologische Zeitschrift*, 49(5):201–202, May **1932.** 2 refs. **DWB**—A brief note outlining the well pronounced föhn phenomena in the Tatra Mountains and in the West Beskides (Carpathian Mountains). An expedition from the Krakov University to the High Tatra reported that the föhn wind, having the local name "Almwind," comes from the south and appears usually at the front of a depression. Sometimes it is a stormy wind reaching 40–50 m./sec. References to other works on this phenomenon are given. *Subject Headings:* **Special winds, Föhn winds, Almwind, Tatra Mountains, Carpathians, Czechoslovakia.**

2G–157 551.553.11(4)

Peppler, W., **Seebrisenänliche Winde bei Schneedecke am Bodensee in März 1931.** [Lake breeze winds and snow cover on Lake Constance in March 1931.] *Zeitschrift für angewandte Me-*

teorologie, 49(4):117–121, April 1932. 2 tables. **DWB**—A rare phenomenon of abundant snow cover 60–80 cm. high at Lake Constance in March is described, and a local breeze-like wind, observed in this condition, is analyzed. *Subject Headings:* **Special winds, Lake breezes, Lake Constance.**

2G–158 551.555.3:55.555.4(497.1)

Seidel, Ferdinand, **Dinarskogorski fén.** [Thé föhn of the Dinaric Alps.] *Geografski Vestnik*, Liubljana, 8(1–4):1–37, 1932. 13 tables, 7 refs. **DWB**—The first description of föhn in the Dinaric Alps appears in this article. Two other local winds of Yugoslavia—bora and košava—are also outlined. Statistical characteristics of föhn are given in tables. *Subject Headings:* **Special winds, Föhn winds, Bora, Košava winds, Yugoslavia.**

2G–159 551.555.3(57)

Tikhomirov, E. I., **Fenovye vetry ozera Baĭkal.** [Föhn winds on Lake Baikal.] *Meteorologicheskiĭ Vestnik*, 1:15–18, 1932. 3 tables. **DLC**—Analysis of föhn phenomena observed near Irkutsk in 1898–1900 by two stations; 1) Verkhniaia Myshikha, near the mountain pass Khamar-Daban and 2) Mysovaia, at the foot of Khabar-Daban. The effect of föhn winds in Irkutsk is discussed. *Subject Headings:* **Special winds, Föhn winds, Lake Baikal, USSR.**

2G–160 551.553.12

van Everdingen, E., **Zur Theorie der Berg-und Talwinde.** [On the theory of mountain and valley winds.] *Beiträge zur Physik der freien Atmosphäre*, 19:109–112, 1932. 2 figs., 4 refs. **DWB**—Theoretical discussion of mountain and valley wind concept, emphasizing the deficiency of HANN's ideas and developing the hydrodynamic theory of WENGER. *Subject Headings:* **Special winds, Mountain and valley wind theory.**

2G–161 551.553.11(47)

Vasenko, A. B., **Issledovanie structury brizovogo potoka.** [Investigation of the structure of the current of breeze.] *Klimat i Pogoda*, No. 1–2:18–20, 1932. **DWB**—In the autumn of 1930 the Aerological Observatory of Slutsk sent an expedition to Crimea for aerological investigation of breezes. Description of methods of observation and a preliminary report of some results obtained by this expedition are given in this article. *Subject Headings:* **Special winds, Land and sea breezes, Crimea, USSR.**

2G–162 551.553.12

Wagner, A., **Neue Theorie des Berg- und Talwindes.** [New theory of mountain and valley winds.] *Meteorologische Zeitschrift*, 49(9):329–341, 1932. 3 figs. 2 refs., 11 equations. **DWB**—Highly theoretical study of mountain winds, slope winds and valley winds. Evaluates the role of slope winds in the compensatory current and presents schematic valley cross sections showing the air current distribution. *Subject Headings:* **Special winds, Mountain and valley wind theory, Malojawind.**

2G–163 551.553.12

Wagner, A., **Hangwind—Ausgleichsströmung—Berg- und Talwind.** [Slope wind—compensatory current—mountain and valley winds.] *Meteorologische Zeitschrift*, 49(6):209–217, June 1932. 20 refs. **DWB**—Criticism of HANN's and WENGER's theories. Objections to both. Proper explanation not yet found. *Subject Headings:* **Special winds, Mountain and valley wind theory.**

1933

2G–164 551.553.12(494)

Braak, C., **Der Maloja wind.** [The Malojawind.] *Meteorologische Zeitschrift*, 50(6):231–232, June 1933. table, 2 refs. **DWB**—The author considered the causes of origin of the Malojawind and discusses briefly the opinions of other investigators of this problem. *Subject Headings:* **Special winds, Malojawind, Switzerland.**

2G–165 551.553.12(78)

Hales, Wayne, B., **Canyon winds of the Wasatch Mountains.** *American Meteorological Society, Bulletin*, 14(8–9):194–196, 1933. **DLC**—Describes the development of strong canyon winds. Emphasizes their favorable influence on plants and fruit trees, in protecting them from winter-kill and prolonging the growing season. *Subject Headings:* **Special winds, Canyon winds, Wasatch Mountains, United States.**

2G–166 551.555.3(79)

Krick, Irving P., **Föhn winds in Southern California.** *Beiträge zur Geophysik*, 39(4):399–407, **1933.** 3 figs., 3 refs. In English, German summary p. 407. **DLC**—Detailed investigation of the föhn type of local wind of southern California known as "Santa Anna." The low humidity and high temperature are explained by the effect of compressional heating. *Subject Headings:* **Special winds, Santa Anna winds, Föhn winds, California, United States.**

2G–167 551.555.12(431/5)

Schulz, Herbert, **Beiträge zur neuen Theorie des Berg- und Talwindes (nach Beobachtungen in deutschen Mittelgebirgen).** [Contributions to a new theory of mountain and valley winds (based on the observations in the Central Ranges of Germany.)] *Zeitschrift für angewandte Meteorologie*, 50(7):193–198, June **1933.** 4 figs., 8 refs. **DWB**—Wagner's ideas applied to explanation of the wind in Wispertal; exchange processes over the slope are explained by thermal conditions. Records show that Wisper valley is 6°C colder at nights than the Rhine valley, and 4°C colder than the adjoining plateau. *Subject Headings:* **Special winds, Mountain and valley wind theory, Wispertal, Alps.**

2G–168 551.555.3:551.594.1

Storm van Leeuwen, W., Booij, J. and van Niekerk, J., **Luftelektrizität und Föhnkrankheit.** [Atmospheric electricity and föhn sickness.] *Beiträge zur Geophysik*, 38(3–4):407–425, **1933.** 4 figs., 4 tables, 14 refs. **DLC**—Measurement of the quantities of large and small ions contained in the atmosphere and the electric conductivity of the air during föhn proved that föhn sickness does not depend directly on the electrical phenomena in the air. *Subject Headings:* **Special winds, Föhn winds, Föhn sickness.**

2G–169 551.555.3

Storm van Leeuwen, W. and Booij, J., **Studien über die physiologische Wirkung des Föhns. Luftdruckschwankungen und Föhn.** [Study on the physiological effect of Föhn. Air pressure oscillations and Föhn.] *Beiträge zur Geophysik*, 39(1):105–117, **1933.** 10 figs., 4 refs. **DLC**—Barometric oscillations investigated in detail during föhn in Innsbruck. Influence on human organism studied experimentally in a closed room. The results proved that the pressure oscillations have no relation to föhn sickness since such sickness occurred at a time when no oscillations were observed and did not appear when oscillations were registered. *Subject Headings:* **Special winds, Föhn winds, Föhn sickness.**

2G–170 551.555.3(494)

Streiff-Becker, R., **Die Föhnwinde.** [Föhn winds.] *Naturforschende Gesellschaft in Zürich, Viertel-Jahrsschrift*, 78:66–82, **1933.** plate, 3 photos, 3 refs. Reprint available. **DWB**—The author tried to extend the earlier knowledge on föhn by using the data of Switzerland's mountain stations. Explanation of the causes of the descent of föhn winds is the main point of this work. Arrangement of föhn types is made. *Subject Headings:* **Special winds, Föhn winds, Föhn theory, Swiss Alps.**

2G–171 551.555.4(44)

†Wedemeyer, Karl, **Der Mistral Südfrankreichs.** [The mistral of southern France.] Inaug. Diss.-Köln, **1933.** 82 p. 16 figs., tables, chart, 92 refs. **DWB**—Comprehensive monograph on mistral in southern France—a strong and cold descending wind—its effect on vegetation, on coast structure, on navigation and on man. Compared with bora and föhn. *Subject Headings:* **Special winds, Mistral, France.**

1934

2G–172 551.553.11

Arakawa, H., **Land and sea breezes and diurnal variation of barometric pressure.** *Meteorological Society of Japan, Journal, 2nd Ser.*, 12(7):345–353, July **1934.** 3 refs., 11 equations. English summary p. 345. **DWB**—The theory of land and sea breeze is discussed considering the factors due to eddy motion. Some characteristics of land and sea breeze circulation are defined. *Subject Headings:* **Special winds, Land and sea breeze theory.**

2G–173 551.553.12(4)

Ekhart, E., **Neuere Untersuchungen zur Aerologie der Talwinde: Die periodischen Tageswinde in einem Quertale der Alpen. (Pilotierungen in Ötztale.)** [Recent investigations on the aerology of valley winds: periodical day winds in a transverse valley of the Alps. (Pilot balloon observations in the Ötz valley.)] *Beiträge zur Physik der freien Atmosphäre*, 21(3):245–268, **1934.** 16 figs., 9 refs. **DWB**—Comprehensive aerological investigation of local winds in transverse valleys. Numer-

ous pilot balloon observations were evaluated to obtain the characteristics of wind development in time and space for U- and V-shaped valleys. Glacier wind conditions schematically presented. *Subject Headings:* **Special winds, Mountain and valley winds, Aerological studies, Alps.**

2G–174 551.555.9(431/5)

Koch, Horst-Günter, **Wald-Feldwind, eine mikroaerologische Studie.** [Forest–field wind, a micro-aerological study.] *Beiträge zur Physisk der freien Atmosphäre*, 22(2):71, 75, **1934.** 2 figs. **DWB**—Measurements made for an investigation of forest climate proved the existence of a forest wind which appears on clear, still nights. Formation of a local wind system, similar to those of sea breezes or mountain-valley winds, has been proved. The day phase, however, is almost non-existent. Special wind surveys with hand anemometers have been carried out, and the results shown on a chart. *Subject Headings:* **Special winds, Forest winds, Germany.**

2G–175 551.555.3(71)

§Krick, I. P., **Föhn wind cyclo-genesis.** *Beiträge zur Geophysik*, 42(1):56–69, **1934.** 8 figs., 3 refs. In English, German summary p. 69. **DLC**—Synoptic processes connected with the föhn genesis of primary cyclones are analyzed. It is proved that föhn of large proportions may initiate the formation of a major cyclone. Development of three cyclones was analyzed in detail. *Subject Headings:* **Special winds, Föhn winds, Rocky Mountains.**

2G–176 551.555.3(479)

Kuz'minskaia, T. V., **Feny v Uch-Dere.** [Föhns in Uch-Dere.] *Klimat i Pogoda*, No. 3:20–22, **1934.** 8 tables. **DWB**—Föhn winds in the Caucasus, and especially on the Black Sea coast, represent an important climatic feature. They are associated with the cyclones coming from the Black Sea, and therefore, more frequent in the cold season. Characteristics of föhn in Uch-Dere are given in tables, and attendant weather changes briefly outlined. *Subject Headings:* **Special winds, Föhn winds, Uch-Dere, Caucasus, USSR.**

2G–177 551.553.12(4)

Lauscher, F. and Eckel, O., **Pilotballonbeoachtungen im Gaital (Kärnten).** [Pilot balloon observations in the Gail valley (Carinthia).] *Meteorologische Zeitschrift*, 51(6):201–206, June **1934.** 5 figs., table, 3 refs. **DWB**—On the basis of pilot balloon observations made in Nötsch on May 19 and 20, 1933, wind conditions were investigated and wind velocities at different altitudes were determined and graphically presented. Comparison has been made with other data obtained simultaneously in other places. *Subject Headings:* **Special winds, Mountain and valley winds, Austrian Alps.**

2G–178 551.555.4(262)

Mengel, M. O., **Extension du mistral en Méditerranée.** [Extent of mistral in the Mediterranean.] *La Météorologie*, No. 10:482–485, Oct. **1934.** chart, 2 refs. **DWB**—Description of the mistral and investigation of its extent illustrated by a chart showing the region affected. *Subject Headings:* **Special winds, Mistral, Mediterranean.**

2G–179 551.555.3(988)

*Petersen, H., **Extrem hohe Temperaturen und Föhn in Grönland.** [Extremely high temperatures and föhn in Greenland.] *Meteorologische Zeitschrift*, 5(8):289–296, Aug. **1934.** 3 figs., 3 tables, 4 refs. **DWB**—Outstanding contrasts in temperature were noticed in Greenland during the winter months when the mean monthly values were about −20°C and the maxima reached +10°, +15°C. Föhn phenomena, contributing to the rapid rise of temperature, are considered as one of the chief causes affecting the high maxima. Valuable statistical data of temperature are presented. *Subject Headings:* **Special winds, Föhn winds, Föhn effects, Greenland.**

1935

2G–180 551.555.4(47)

§Alisov, B. P., **IAvlenie bory v vostochnom Kazakstane.** [The phenomenon of bora in eastern Kazakhstan.] *Zhurnal Geofiziki*, 5(1):99–115, **1935.** 11 charts, 5 tables. French summary p. 115. **DLC**—Characteristics of bora observed on the northern coast of Lake Balkhash. The origin is explained by the descent of cold arctic air masses from the Chingis mountain range, which occurs when the arctic air invades and forms a stable NE current over the mountain ridge. Appearing suddenly, this wind is mostly cold, dry and gusty, often reaching 20 m./sec. *Subject Headings:* **Special winds, Bora, Lake Balkhash, Kazakh S.S.R.**

2G–181 551.555.3(47)

Arkhangel'skiĭ, V., **O fenovykh vetrakh Tsentral'nogo Zabaĭkal'ia.** [Föhn winds in the Central Transbaikal area.] *Klimat i Pogoda*, (5):13–17, **1935.** 2 figs., 3 refs. **DWB**—Quoting the statement made by Prof. A. V. Voznesenskiĭ 20 years ago, stressing the impossibility of detailed study of climatic conditions of East Siberia without a sufficient knowledge of orographical conditions and surface relief of this mountainous land, the author gives description of station locations for the Transbaikal area and considers the wind regime outlining föhn winds and attendant synoptic conditions. Some remarks concerning clouds with illustrative photographs are added. *Subject Headings:* **Special winds, Föhn winds, Siberia, U.S.S.R.**

2G–182 551.555.8(569.4)

Ashbel, Dov, **Der Scirocco (Hamsin) Palästinas.** [The Sirocco (Khamsin) of Palestine.] *Folia Medicinae Internae Orientalia*, 1(3–4):250–268, **1934–1935.** 6 figs., 6 tables, 5 refs. German, English and French summaries p. 266–268. **DWB**—Variations of meteorological elements during khamsin days are given. Some theoretical explanations of this phenomenon are illustrated by synoptic charts. (*Same item* as 2E–108 May 1951 *Meteorological Abstracts.*) *Subject Headings:* **Special winds, Sirocco, Khamsin, Palestine.**

2G–183 551.555.9(4)

Ekhart, E., **Über einige Gletscherwindmessungen in den Ötztaler Alpen.** [Several measurements of glacier winds in Ötzvalley Alps.] *Zeitschrift für Gletscherkunde*, 22:217–222, **1935.** 3 figs., 4 refs. **DWB**—A special kind of periodic mountain winds, the glacier or firn wind, is more pronounced in good weather conditions during the warm season. Pilot balloon ascents observed by double theodolite method gave the basic material for the investigation of these currents. Vertical distribution of wind velocity and some data for temperature are presented. *Subject Headings:* **Special winds, Glacier winds, Alps.**

2G–184 551.553.11(6)

Green, F. H. W., **On- and off-shore winds in East Africa.** *Meteorological Magazine*, London, 70(831):57–60, April **1935.** 2 figs. **DWB**—New diagrams of air movement are used to show how well marked the on- and off-shore breeze can be on the south shore of Lake Victoria. Diagrams are given for various hours of the day. *Subject Headings:* **Special winds, Lake breezes, Lake Victoria, Africa.**

2G–185 551.555.3(988)

Holzapfel, Rupert, **Extrem hohe Temperaturen und Föhn in Grönland.** [Extremely high temperatures in föhn in Greenland.] *Meteorologische Zeitschrift*, 52(8):299–300, Aug. **1935. MH-BH**—Discussion of an article with the same title by Helge Petersen (*ibid.*, 1934, p. 209) concerning the high temperatures observed in winter in Greenland. The author analyzed the relation of temperature to föhn phenomena. (*See item* 2G–179.) *Subject Headings:* **Special winds, Föhn winds, Föhn effects, Greenland.**

2G–186 551.555.8(47)

Karetnikova, K. A., **Sinopticheskie usloviia vozniknoveniia "Afgantsa" i nekotorye osobennosti etogo iavleniia.** [Synoptic conditions of the origin of "Afganets" and some peculiarities of this phenomenon.] *Zhurnal Geofiziki*, 5(4):518–531, **1935.** 2 figs., table, 1 ref. English summary p. 531. **DLC**—A strong wind "Afganets" observed in the upper course of the Amu-Dar'ia River and accompanied by a dust storm is described. Contributing causes analyzed and discussed. *Subject Headings:* **Special winds, Afganets, Central Asia.**

2G–187 551.553.11(438)

Koschmieder, H., **Der Seewind von Danzig.** [The sea wind in Danzig.] *Meteorologische Zeitschrift*, 52(12):491–495, Dec. **1935.** 6 figs., table. **DWB**—Observations made by a special network during 1932–1935 were used for detailed investigation of wind conditions in Danzig Gulf. Extent of the sea wind and its interaction with the gradient wind is discussed. *Subject Headings:* **Special winds, Land and sea breezes, Danzig.**

2G–188 551.553.12(4)

Moll, E., **Aerologische Untersuchungen periodischer Gebirgswinde in V-förmigen Alpentälern.** [Aerological investigations of the periodic mountain winds in the V-shaped valleys in the Alps.] *Beiträge zur Physik der freien Atmosphäre*, 22(3):177–199, **1935.** 18 figs., 7 refs. German summary p. 198–199. **DWB**—An extensive aerological investigation of several V-shaped valleys with different orographic characteristics has been carried out in a way similar to Ekhart's investigation of U-

shaped valleys. This was done in order to determine the similarity of wind conditions and the possibility of generalization based on EKHART's conclusions. (*See item* 2G–173.) *Subject Headings:* **Special winds, Mountain winds, Aerological studies, Alps.**

2G–189 551.555.3(4)

Streiff-Becker, R., **71 Jahre Glarnerföhn.** [71 years of Glarus föhn.] *Meteorologische Zeitschrift*, 52(4):147–150, April **1935.** 4 figs., 4 refs. **MH-BH**—Reviews the knowledge obtained on föhn in Glarus during 71 year of observation and study. The author made a complete statistical analysis of all the available series, and has drawn certain conclusions about the frequency and annual variation of föhn in Auen and Glarus. *Subject Headings:* **Special winds, Föhn winds, Föhn statistics, Alps.**

2G–190 551.555.3

Storm van Leeuwen, W., Booij, J., Israël, H. and van Niekerk, J., **Studien über die physiologische Wirkung des Föhns. Luftdruckschwankungen, Luftzusammensetzung und Föhn.** [Studies of the physiological effect of föhn. Air pressure oscillations, air composition and föhn.] *Beiträge zur Geophysik*, 44(4):400–439, **1935.** 29 figs., 4 tables, 16 refs. German, English and French summaries p. 400–402. **DLC**—Fluctuations of atmospheric pressure and strange gas content during föhn is analyzed. No evidence has been found to confirm the supposition that these elements caused the bad physiological föhn effect. *Subject Headings:* **Special winds, Föhn winds, Föhn disease.**

1936

2G–191 551.555.3(494)

Böhme, Georg, **Zur Meteorologie des Glarner Föhns.** [On the meteorology of the Glarus föhn.] *Schweizerische Naturforschende Gesellschaft, Verhandlungen*, Vol. 117:267, **1936. DLC**—For investigation of temperature and humidity of föhn in the Glarus valley, 6 thermographs were installed at different locations: Elm, Auen-Linthal, Braunwald, Schwändi, Glarus and Ziegelbrücke. They were in operation from Nov. 1933 to June 1936. In Elm-Wallenberg pilot balloon observations were also made. Seven typical cases of föhn were worked up and the following conclusions derived: the föhn always sets in at the back of the valley, persisting there longer and ending later than in the other places. The advent is gradual at this point, but sudden in the mouth of the valley. *Subject Headings:* **Special winds, Föhn winds, Switzerland.**

2G–192 551.555.3(494)

Douglas, C. K. M., **Föhn winds in the Alps.** *Meteorological Magazine*, London, 71(843):72–73, April **1936. DWB**—The name "föhn" is universally used in the Alps to denote a winter thaw, but it is the author's opinion that the föhn is in no sense the cause of the thaw. In the Alps, on slopes facing the northern semicircle, the winter thaws are due to incursions of warm damp and usually tropical air. *Subject Headings:* **Special winds, Föhn winds, Swiss Alps.**

2G–193 551.553.12(4)

Ekhart, E., **Die Windverhältnisse des Arlbergs. I Teil: Bodenbeobachtungen.** [The wind conditions in Arlberg. Pt. I: ground observations.] *Beiträge zur Geophysik*, 48(4):313–324, **1936.** 4 figs., 5 tables, 12 refs. German and English summaries p. 313. **Pt. II: Aerologische Beobachtungen.** [Aerological Observations.] *Ibid.*, 49(1–2):7–25, 1937. 10 figs., 10 refs. German and English summaries p. 7–8. **DLC**—The ground wind observations at the stations at St. Anton, St. Christoph and Stuben proved the presence of local winds of Malojawind type in the region of the Arlberg Pass. By means of pilot balloons it has been found that the overrunning of the Klostertal-winds over the ridge and down the opposite valley is possible. Results of the observations on conditions of air motion can be confirmed by the typical cloud formations similar to the Malojaserpent. *Subject Headings:* **Special winds, Mountain and valley winds, Malojawind, Arlberg Pass, Austria.**

2G–194 551.553.12(4)

Ekhart, E., **Die Windverhältnisse über einer inneralpinen Station.** [The wind conditions over a station in the interior Alps.] *Beiträge zur Physik der freien Atmosphäre*, 23(3):165–194, **1936.** 12 figs., 13 tables, 29 refs. **DWB**—Twelve hundred pilot balloon ascents provided the material for general investigation of wind regime over the Innsbruck region and gave clear evidence of the effect of local winds especially in summer. *Subject Headings:* **Special winds, Mountain and valley winds, Innsbruck, Alps, Austria.**

2G–195 551.555.3(78)

Johnson, Harley, N., **The dry Chinook wind.** *American Meteorological Society, Bulletin,* 17(1):23–27, **1936. DLC**—Describes characteristics of chinook wind which is an important climatic factor on the eastern slope of the Rocky Mountains and the Black Hills. Synoptic situations and forecasting possibilities are outlined. Accompanying temperature and humidity data are given, and the rapid changes of temperature emphasized. *Subject Headings:* **Special winds, Chinook winds, Rocky Mountains, United States.**

2G–196 551.555.3(436)

Kanitscheider, Rudolf, **Beiträge zur Mechanik des Föhns. II.** [Contributions to föhn mechanics. II.] *Beiträge zur Physik der freien Atmosphäre,* 24(1):26–44, **1936.** 7 figs., 8 tables, 3 refs. **DWB**—Seventy ascents of pilot balloons were made near the ends of Sill and Zill valley, joining the Inn valley. The vertical divergence of streams over the Inn valley and sinking of the föhn stream in this valley from the southern ridge are clearly defined. *Subject Headings:* **Special winds, Föhn theory, Aerological studies, Tyrol.**

2G–197 551.553.11(47)

Kellerman, V., **Brizy na Volge u Saratova.** [Breezes on the Volga River near Saratov.] *Meteorologiia i Gidrologiia,* 2(9):63–66 Sept. **1936.** 8 tables. **DLC**—A curious phenomenon of river breezes, discovered by analysis of observational data and synoptic charts, is described and statistical data given. *Subject Headings:* **Special winds, River breezes, Volga River, U.S.S.R.**

2G–198 551.553.12(4)

Kleinguti-Schaumann, Hilda, **Über die Windverhältnisse des Engadins, speziell den Malojawind. 1. Ergebnisse von den Anemographenregistrierungen des Sommers 1936.** [Wind conditions in Engadin, especially of Malojawind. 1. Results of anemographic records in the summer of 1936.] *Meteorologische Zeitschrift,* 54(8):289–295, Aug. **1937.** 3 figs., 4 tables, 12 refs. **MH-BH**—The wind diagram showing prevailing down valley winds in summer is discussed in detail. A compilation of the daytime winds shows the up valley wind from NE—"Brüsha," and the classic Malojawind as the main types. Daily variations of directions and velocity are presented. *Subject Headings:* **Special winds, Mountain and valley winds, Brüsha, Alps.**

2G–199 551.553.11(47)

Köppen, W., **Seewind im Frühling, Ozeanwind im Sommer.** [Sea wind in spring, ocean wind in summer.] *Annalen der Hydrographie und Maritimen Meteorologie,* 64(11):847–488, Nov. 15, **1936.** 2 tables, 3 refs. **DLC**—Brief note on sea breezes in the Black Sea area developed in spring, but masked by the western monsoon wind in summer. *Subject Headings:* **Special winds, Land and sea breezes, Black Sea, U.S.S.R.**

2G–200 551.553.11(438)

†§Koschmieder, Harald, **Danziger Seewindstudien 1: Nachweis und Beschreibung, sowie Beiträge zur Kinematik und Dynamik des Seewindes.** [Studies of the sea wind in Danzig I: evidence and description with some contributions to kinematics and dynamics of the sea wind.] *Danzig, Meteorologisches Institut, Forschungsarbeiten,* Heft 8, **1936.** 44 p. 19 figs., table, 16 refs. German summary p. 42–44. **DWB**—Extensive study of sea breeze phenomenon with a thorough analysis of observational data. Special stations for sea breeze investigation were established. Sounding by pilot balloons and air plane ascents were made and some data of the movement of sea breeze front in different pressure situations were obtained. The forces due to pressure gradient and gravity are considered and the frontal theory discussed. Important theoretical contribution. *Subject Headings:* **Special winds, Land and sea breeze theory, Danzig.**

2G–201 551.555.3(47)

§Ponomarev, M. D., **Mestnye sil'nye vetry Ibe v pogranichnoĭ Dzhungarii.** [Local strong winds Ibe in the borderland of Dzhungaria.] *Klimat i Pogoda,* No. 5:13–25, **1936.** 3 figs., 11 refs. **DWB**—A strong local wind blows through the Dzhungarian Gate—a relatively wide valley (10–20 km.) connecting the large depression of Lake Ebinor with the depression of Balkhash-Alakul. This wind has a föhn-like character and brings about a considerable rise of temperature, sometimes it jumps from −20°, −30°C to 0°C and higher. General characteristics and analysis of synoptic conditions are given. No direct observational data available. *Subject Headings:* **Special winds, Ibe winds, Föhn winds, Dzhungaria, U.S.S.R.**

2G–202 551.555.3:551.553.12(6)

Schmauss, A., **Zur Frage über den Ursprung des Föhns.** [On the problem of the origin of föhn.] *Zeitschrift für angewandte Meteorologie,* 53(10):323–324, Oct. **1936.** 3 refs. **DWB**—Brief historical

review of DOVE's and HANN's ideas concerning föhn phenomena and some early hints of the right explanation of free föhn, developed now in modified forms by other scientists. *Subject Headings:* **Special winds, Föhn theory.**

2G–203 551.555.8(62)

Twist, T. F., **Relatively low temperature during Khamsin conditions, Ismailia, Egypt.** *Meteorological Magazine*, London, 71(849):214–215, Oct. **1936.** **DWB**—On April 22, 1936, during warm southerly or khamsin wind in Ismailia a rather low maximum of temperature (101°F) was observed. It might be accounted for by the fact that the wind blew over fairly large expanses of water before reaching Ismailia, coming from the Gulf of Suez and crossing the Bitter Lakes and Lake Timsah. Remarkable evidence of an inversion. *Subject Headings:* **Special winds, Khamsin, Ismailia, Egypt.**

2G–204 551.555.3:551.553.12(6)

van Rooy, M. P., **Influence of berg winds on the temperature along the west coast of South Africa.** *Royal Meteorological Society, Quarterly Journal*, 62(267):528–537, Oct. **1936.** 6 figs., 4 tables, 4 refs. **DWB**—Föhn-like winds blowing off the interior plateau in South Africa have great effect on the daily maximum temperatures, therefore the mean value of temperature for this region has to be used with discrimination. *Subject Headings:* **Special winds, Berg winds, Mountain and valley winds, South Africa.**

1937

2G–205 551.553.11

Arakawa, H. and Utsugi, M., **Theoretical investigation on land and sea breezes.** *Geophysical Magazine*, Tokyo, 11(2):97–104, Sept. **1937.** 6 figs., 2 refs., 15 equations. In English. **DWB**—A theoretical study based on hydrodynamic laws. Extensive mathematical treatment. *Subject Headings:* **Special winds, Land and sea breeze theory.**

2G–206 551.555.8(6)

†Farquharson, J. S., **Haboobs and instability in Sudan.** *Royal Meteorological Society, Quarterly Journal*, 63(271):393–414, **1937.** 12 figs., 6 tables, plate, 14 refs. Summary p. 393. **DWB**—Investigation of the dust storms in Sudan called "haboobs," which is an Arabic word for wind. Several cases of this wind are discussed with reference to upper winds and upper air temperatures. Conditions of instability are investigated and it is suggested that they refer to a discontinuity between southwesterly monsoon and northeasterly trade. *Subject Headings:* **Special winds, Haboobs, Sudan.**

2G–207 551.553.12(52

Fukuda, K., **Mountain and valley breezes.** *Meteorological Society of Japan, Journal, 2nd Ser.* 15(2):65–70, Feb. **1937.** 4 figs., 4 tables, 4 equations. In Japanese, English summary p. (6). **DWB**—Investigation of mountain and valley winds on Mt. Tukuba and their relation to temperature distribution. Mathematical treatment of the problem with some laboratory experiments. *Subject Headings:* **Special winds, Mountain and valley wind theory, Mount Tukuba, Japan.**

2G–208 551.555.12(4

Jelinek, A., **Beiträge zur Mechanik der periodischen Hangwinde.** [Contributions to the mechanics of periodic slope winds.] *Beiträge zur Physik der freien Atmosphäre*, 24(2):60–84, **1937.** 9 figs., chart, 2 tables, 13 refs. German summary p. 82–84. **DWB**—Aerological investigation of the effect of slope aspect on the phase and intensity of the slope wind. The best development was noticed on the S slope and the worst one on the N slope. The maximum thickness of the up slope wind layer was 260 m. (S-slope). *Subject Headings:* **Special winds, Slope wind theory, Aerological studies, Alps.**

2G–209 551.553.12(4

Jelinek, A., **Über den thermischen Aufbau der periodischen Hangwinde.** [The thermal structure of periodic slope winds.] *Beiträge zur Physik der freien Atmosphäre*, 24(2):85–97, **1937.** 12 figs., 3 tables, 12 refs. **DWB**—Investigation of the relations between the stratification of temperature and development of the slope wind system. The first part contains the observations made in spring with snow cover on N and S slope at 1000–2000 m. elevation. The second part includes the measurements of wind and temperature made simultaneously with aerological observations in the summer of 1935. *Subject Headings:* **Special winds, Slope winds, Alps.**

2G–210 551.553.12(4)

Jelinek, A. and Riedel, A., **Über die Schichtdicke der periodischen Lokalwinde im Inntal.** [The thickness of the layer of periodic local winds in the Inn Valley.] *Beiträge zur Physik der freien Atmosphäre*, 24(3):205–215, **1937.** 4 figs., 2 tables, 5 refs. German summary p. 214–215. **DWB**—On the basis of aerological observations made in 1934, the author investigated the extent of the upslope and downslope valley winds and came to the conclusion that these winds do not extend so high over the middle of the valley as over the side slopes. *Subject Headings:* **Special winds, Mountain and valley winds, Aerological studies, Inn Valley, Austria.**

2G–211 551.553.11

Kobayasi, Tatuo and Sasaki, Tatudirô, **Theoretical and experimental studies of convectional circulation and its relation to land and sea breezes.** *Tokyo, Imperial University, Aeronautical Research Institute, Report*, 12(145):1–67, Feb. **1937.** 28 figs., 9 tables, numerous equations. In English. **DWB**—Highly theoretical treatment of the problem. Mathematical solution compared with experimental and observed data on sea breezes. *Subject Headings:* **Special winds, Land and sea breeze theory.**

2G–212 551.555.12(4)

Kleinguti-Schaumann, Hilda and Moll, E., **Zur Aerologie des Malojawindes.** [Aerology of the Malojawind.] *Schweizerische Naturforschende Gesellschaft, Verhandlungen*, 118 Jahresversammlung vom 27. bis 29. August **1937** in Geneve. p. 109–111. **DWB**—This brief report gives important results of aerological investigations. The average vertical extension of this wind in Celerina is 600 m. The maximum height 800–900 m. Horizontal extension of Malojawind from Engadin downward is from 5 to 50 km. Similar data for other places and for the up-valley winds are also given. *Subject Headings:* **Special winds, Malojawind, Aerological studies, Alps.**

2G–213 551.555.3

†Lehmann, Otto, **Zur Geschichte der Föhn theory.** [History of the föhn theory.] *Naturforschende Gesellschaft in Zürich, Vierteljahrsschrift*, 22(1–2):45–76, 30 June **1937.** 29 refs. Reprint available. **DWB**—Well arranged, historical review of the theoretical knowledge of föhn winds. *Subject Headings:* **Special winds, Föhn theory.**

2G–214 551.553.12

Moll, E., **Über die Windverhältnisse des Engadins, speciell den Malojawind. II Aerologische Untersuchungen des Sommers 1937.** [On wind conditions in Engadin, especially on Malojawind. II. Aerological investigations in the summer of 1937.] *Beiträge zur Physik der freien Atmosphäre*, 24(4):270–289, **1938.** 12 figs., 12 refs. German summary p. 288–289. **DWB**—Extensive study on Malojawind system carried out on the basis of aerological observations made in the summer of 1937 by the private observatory Engiadinais da Climatologia in Celerina. *Subject Headings:* **Special winds, Malojawind, Aerological studies, Alps.**

2G–215 551.555.4

§Scherhag, R., **Die aerologische Entwicklungsbedingungen zyklonaler Bora.** [Aerological conditions of development of the cyclonic Bora.] *Annalen der Hydrographie und Maritimen Meteorologie*, 65(6):286–290, June 15, **1937.** 3 figs., 4 refs. **DLC**—Synoptic analysis of a case of violent cyclonic bora which followed the frontal zone moving from north to south over France. Bora of cyclonic type may extend over the whole Adriatic area. Aerological observations might be of great importance for forecasting. *Subject Headings:* **Special winds, Bora, Western Europe, Adriatic Sea.**

2G–216 551.553.12(431/5)

Schulz, L., **Zur Lokalklimatologie von Bad Harzburg.** [The local climatology of Bad Harzburg.] *Zeitschrift für angewandte Meteorologie*, 54(7):216–221, July **1937.** 3 tables. **DWB**—A noteworthy investigation of the local climate of mountain resorts and the important climatic features brought about by the mountain winds for certain locations. During nights with a clear sky the mountain wind was very well developed in the lower part of the valley, and the difference in temperature between the stations located in 380 m. of horizontal distance and 180 m. of vertical distance reached 6.1°C showing the advantage of higher night temperature on the upper station, but better ventilation and cleaner mountain air in the lower part of the valley. *Subject Headings:* **Special winds, Mountain wind effects, Bad Harzburg, Germany.**

2G–217 551.555.3

Schulz, L., **Registrierungen der Temperatur und Feuchtigkeit am Oberharz bei freiem Föhn.** [Records of temperature and humidity at Oberharz during free föhn.] *Meteorologische Zeitschrift, Bioklimatische Beiblätter*, 4(3):121–124, **1937.** 7 figs., 9 refs. **DWB**—Thermograms from several stations in Oberharz showed great oscillations of temperature which are due to the standing waves at the ground inversions. Extremely low humidity was often observed, resulting from sinking of the air masses some times from a height of 6000 m. *Subject Headings:* **Special winds, Free föhn.**

2G–218 551.553.11(411)

Sutcliffe, R. C., **The sea breeze at Felixstowe. A statistical investigation of pilot-balloon ascents up to 5500 feet.** *Royal Meteorological Society, Quarterly Journal*, Vol. 63:137–148, **1937.** 8 figs., 2 tables, 2 refs. **DWB**—Analysis of pilot-balloon observations for the period 1924–33 provided the data for a study of sea breeze effect on upper winds (to 5.500 feet). Results obtained show the speed in layers up to 500, the average depth of the sea breeze (1.500 feet), but no evidence of an increased outflow to form a returning current. *Subject Headings:* **Special winds, Land and sea breezes, Aerological studies, Felixstowe, England.**

2G–219 551.553.11(479)

Vorontsov, P. A., **Brizy v raïone Sochi.** [Breezes in Sochi region.] *Meteorologiia i Gidrologiia*, 3(4–5):29–37, April–May **1937.** 8 tables. **DLC**—Analysis of breeze development in Sochi region based on wind observations made by means of pilot balloons and standard level balloons during July–Aug. 1934. *Subject Headings:* **Special winds, Land and sea breezes, Aerological studies, Sochi, Caucasus.**

2G–220 551.555.3(4)

Weiss, I., **Untersuchung über Föhn im Riesengebirge.** [Investigation on föhn in Riesen Gebirge.] *Berlin, Universität, Meteorologisches Institut, Veröffentlichungen*, 2(5), **1937.** 48 p. 18 figs., tables, 2 refs. German summary p. 30–31. **MH-BH**—Detailed investigation of the records made by a special network in Riesen Gebirge from the summer of 1932 to the spring of 1934 concerning the most remarkable cases of föhn distinguished by different conditions of origin; four anticyclonic, three cyclonic and one mixed föhn types are discussed in detail. *Subject Headings:* **Special winds, Föhn winds, Riesen Gebirge, Germany.**

1938

2G–221 551.555.9(54)

Bannerji, B., **Nature of "Nor'westers" of Bengal and their similarity with others.** *Beiträge zur Physik der freien Atmosphäre*, (4):231–233, **1938.** **DWB**—The "Kal Baisakhi" or the "Nor'westers" of Bengal are considered by the author as being similar in their nature to the "Shamals" of the Persian Gulf and the "Loo" or "Kala Andi" of Northwest India. "Nor'westers" occurred usually at the narrow strip of land where two air currents met, and therefor the region covered by these winds is limited to a small area along the front. (*Same item* as No. E–269 in May 1950 *Meteorological Abstracts.*) *Subject Headings:* **Special winds, Nor'westers, Bengal.**

2G–222 551.555.4:551.524.37

Cornford, C. E., **Catabatic winds and the prevention of frost damage.** *Royal Meteorological Society, Quarterly Journal*, 64(277):553–587, **1938.** 20 figs., 20 refs. **DWB**—Observations of air currents on hillsides on clear nights, made with new instruments recording low wind velocity and air temperature fluctuations, are presented. It has been proved that the hilltop wind, facing the higher part of the slope, may push the air uphill in the first 10 ft. above the ground. The temperature of a katabatic wind which moves down the slope does not necessarily decrease. Methods for preventing frost damage are discussed. *Subject Heading:* **Special winds.**

2G–223 551.555.3(4)

Externbrink, H., **Die Hinderniswogenwolken in den Alpen bei Südföhn.** [The hindrance wave clouds in the Alps during the southern föhn.] *Beiträge zur Physik der freien Atmosphäre*, 25(1):44–48, **1938.** 4 figs., 6 refs. **DWB**—By means of motor flight observations it was determined that with wind speeds between 10 and 50 km./h. the obstacle clouds are formed on the lee side of greater elevations. Theoretical and experimental explanations of this phenomenon are developed and illustrated by schematic stream line patterns. *Subject Headings:* **Special winds, Föhn winds, Alps.**

2G–224 551.553.12:551.555.9(4)

Ekhart, E., **Die Tageszeitenwinde der Alpen. Eine Darstellung nach dem neuesten Stande unseres Wissens.** [The daytime winds in the Alps. A representation according to the present state of our knowledge.] *Naturwissenschaften*, 26(2):21–27, Jan. 14, **1938.** **DWB**—A compre-

ensive treatise on the theoretical origin of local winds, arrangement of mountain and valley wind ystem and schematic presentation of the local air circulation in mountains. *Subject Headings:* **Special winds, Mountain and valley wind theory, Slope winds, Alps.**

2G–225 551.553.11:551.555.3(494)

†§Gutersohn, Heinrich, **Lokale Winde im Gebiet der Baye de Montreux.** [Local winds in the rea of the Bay of Montreux.] *Naturforschende Gesellschaft in Zürich, Vierteljahresschrift*, 83(3–4): 12–264, **1938.** 18 figs., 35 refs. Reprint available. **DWB**—Description and meteorological haracteristics of land and lake breezes and föhn winds observed in this area, with analysis of con- ucive synoptic conditions and climatological effect of these phenomena. *Subject Headings:* **Special inds, Land and sea breezes, Föhn winds, Bay of Montreux, Switzerland.**

2G–226 551.555.3(79)

Ives, Ronald L., **Chinook winds in Northern Colorado.** *American Journal of Science*, Ser. 5, 5(206):138–142, Feb. **1938.** 2 charts, ref. **DLC**—From several years of observation of chinook henomena, general conclusions are drawn on the possibility of predicting temperatures on the indward side of the range by calculating them for wet adiabatic conditions. The coldest point is etermined by the local topography. The author also gives some revised explanations of the tem- erature change observed during chinook wind. *Subject Headings:* **Special winds, Chinook winds, hinook theory, Colorado.**

2G–227 551.555.3(4)

Kanitscheider, R., **Beiträge zur Mechanic des Föhns. III.** [Contributions to föhn mechanics. II.] *Beiträge zur Physik der freien Atmosphäre*, 25(5):49–58, **1938.** 5 figs., 2 tables, 13 refs. erman summary p. 57. **DWB**—The system of stream lines existing in a longitudinal valley, which tretches between two E-W oriented mountain ranges (Oberinntal), has been investigated during öhn by means of pilot balloons. An attempt to find quantitatively the effect of ground configuration n föhn winds gave successful results for a 20° slope. *Subject Headings:* **Special winds, Föhn theory, lps.**

2G–228 551.553.11(41)

Kellerman, V., **Povtoriaemost' i napravlenie briza na iuzhnom poberezh'i Kryma.** [The fre- uency and direction of the breeze on the southern coast of Crimea.] *Meteorologiia i Gidrologiia*, (9–10):53–61, Sept–Oct. **1938.** 3 figs., 8 tables. **DLC**—Climatological analysis of breezes on the outhern coast of Crimea. Distribution of the breezes in time and space. Temperature and hu- nidity characteristics. *Subject Headings:* **Special winds, Land and sea breezes, Crimea, U.S.S.R.**

2G–229 551.555.9(479)

Khrgian, A. KH., **Lednikovyĭ veter.** [The glacier wind.] *Meteorologiia i Gidrologiia*, (11–12):51–66, **1938.** 6 figs., 8 tables, 9 refs. **DWB**—The high, snow covered mountain ridges have heir own wind system, which differs considerably from the usual mountain-valley circulation. An xpedition was sent by the Climatology Dept. of the Moscow Hydro-Meteorological Institute to the ighest part of the Caucasian range, the Bezenginskaia wall, where the largest glaciers are found. The structure and extension of the glacier wind were studied by microclimatological methods, and nteresting concrete conclusions are reached. *Subject Headings:* **Special winds, Glacier winds, Caucasus.**

2G–230 551.555.3(4)

†Küttner, Joachim, **Moazagotl und Föhnwelle.** [Moazagotl and föhn wave.] *Beiträge zur Physik der freien Atmosphäre*, 25(2):79–114, **1938.** 43 figs., 66 refs. German summary p. 113–114. **DWB**—Glider flight observations in Riesen Gebirge were used for investigation of the formation of vaves on the lee side of the mountains. Cyclonic and anticyclonic types of föhn are described nd schematic presentation of the stream lines of Maozagotl and similar phenomena is given. Some ractical suggestions for glider flights complete the article. *Subject Headings:* **Special winds, Föhn inds, Riesen Gebirge, Germany.**

2G–231 551.553.12(4)

Moll, E., **Die Windverhältnisse des Malojapasses: Doppelvisierungen von Pilotballonen im Bergell.** [Wind conditions of Maloja pass: Pilot balloon observations by double theodolite method.] *Beiträge zur Physik der freien Atmosphäre*, 25(1):59–68, **1938.** 4 figs., 7 refs. German summary p. 67–68. **DWB**—Investigation of valley wind conditions in upper Bergell. Several conclusions rawn. *Subject Headings:* **Special winds, Malojawind, Aerological studies, Alps.**

2G–232 551.555.12(4)

Mörikofer, W., **Zur Klimatologie des Malojawindes.** [On the climatology of the Malojawind.] *Meteorologische Zeitschrift*, 55(6):215–217, June **1938.** table, 4 refs. **DWB**—Wind observations made in Sils-Baselgia (1810m.) from 22 July to 24 Aug. 1935, were evaluated to find some Malojawind characteristics. Various phases of development are described. *Subject Headings:* **Special winds, Malojawind, Sils-Baselgia, Alps.**

2G–233 551.555.3(4)

§Piersig, W., **Einfluss des Alpenföhns auf das Grosswettergeschehen.** [Alpine föhn effect on the large scale weather development.] *Annalen der Hydrographie und Maritimen Meteorologie*, 66(2):67–69, Feb. 15, **1938.** 4 figs., table. **DLC**—Analysis of a case of föhn influence on large meteorological processes, and eventually on the weather conditions of distant areas. *Subject Headings:* **Special winds, Föhn winds, Föhn effect, Alps.**

2G–234 551.555.3(71)

Remarkable Chinook in Alberta. *American Meteorological Society, Bulletin*, 19(9):408–409, **1938. DLC**—Description of chinook phenomena in Alberta affecting the temperature (jump of 34°F within half an hour) and reducing the visibility for car drivers to zero because of sudden frosting of windshields. *Subject Headings:* **Special winds, Chinook winds, Alberta, Canada.**

2G–235 551.555.9(4)

Schwabl, W. and Tollner, Hanns, **Vertikalbewegungen der Luft über einem Gletscher.** [The vertical motion of air over a glacier.] *Meteorologische Zeitschrift*, 55(2):61–64, Feb. **1938.** 4 figs., 2 refs. **DWB**—Pilot balloon observations made in the summer of 1934 in the Pasterz area were evaluated and it was found that glacier winds appeared not only in fair weather but also on cloudy days and even in rain. The vertical motion of the air is discussed in detail. *Subject Headings:* **Special winds, Glacier winds, Alps.**

2G–236 551.553.12

†Wagner, A., **Theorie und Beobachtung der periodischen Gebirgwinde.** [Theory and observations of periodic mountain winds.] *Beiträge zur Geophysik*, 52:408–449, **1938.** 4 figs., 54 refs. **DWB**—Extensive study of the circulation of mountain and valley winds and its dependence on the season and weather. Vertical extension and the upper compensatory current are investigated. Winds of Maloja type and the winds in Death Valley were also analyzed. *Subject Headings:* **Special winds, Mountain and valley wind theory.**

2G–237 551.555.3(494)

Walter, Emil J., **Föhn trotz steigendem Luftdruck (24–28 Oktober 1937).** [Föhn in spite of the rising air pressure (24–26 October 1937).] *Naturforschende Gesellschaft in Zürich, Vierteljahresschrift*, 83(3–4):341–344, Dec. 31, **1938.** table. Reprint available. **DWB**—A peculiar case of föhn is analyzed. Good, pronounced föhn situation was formed not by the falling air pressure but by a general rising over middle Europe and the Alps region. This case doesn't fit FICKER's scheme which explains föhn as an effect of arriving depression, which "pulls out" the air out of the Alps valley. On the contrary, the stream of föhn was obviously "pressed out" over the mountain ridge, and the rise of pressure being stronger in the south than in the north of the Alps produced the föhn wind. *Subject Headings:* **Special winds, Föhn winds, Alps.**

1939

2G–238 551.553.12(52)

Fukuda, K., **On the mountain and valley breezes. (II).** *Meteorological Society of Japan, Journal, 2nd Ser.*, 17(2):50–56, Feb. **1939.** 4 figs., 4 tables, 5 refs. In Japanese, English summary p. (33). **DWB**—Description of the regime of mountain and valley winds near Mt. Tukuba. The time of onset and ending, the effect on fogs and the effect of local topography on diurnal variation of wind direction are outlined. *Subject Headings:* **Special winds, Mountain and valley winds, Mt. Tukuba, Japan.**

2G–239 551.555.3

†Küttner, Joachim, **Zur Entstehung der Föhnwelle.** [The origin of the föhn wave.] *Beiträge zur Physik der freien Atmosphäre*, 25(4):251–299, **1939.** 41 figs., 97 refs., 32 equations. **DWB**—Results of glider flight observations on Moazagotl clouds, reaching 8600 m. are briefly outlined, and followed by extensive theoretical study of the mechanism of föhn taking up successively the processes on the wind side and lee side, föhn waves, inversions, föhn types, and also formation of clouds associated with föhn phenomena. *Subject Headings:* **Special winds, Föhn theory.**

2G–240 551.555.3(4)

Streiff-Becker, R., **Etwas vom Föhn.** [Something about föhn.] *Revue pour l'Étude des Calamités*, Geneva, (6):171–179, May–June, **1939.** 4 figs. French summary p. 179. Reprint available. **DWB**—Various types of föhn are described and illustrated by weather chart showing the favorable situation for föhn development. Some effects of föhn on the living organism are also mentioned. *Subject Headings:* **Special winds, Föhn winds, Föhn effects, Alps.**

2G–241 551.555.11

Yamasita, R., **A theory of "land and sea breezes."** *Meteorological Society of Japan, Journal, 2nd Ser.*, 17(2):61–68, Feb. **1939.** 32 equations. In Japanese, English summary p. (33–34). **DWB**—A mathematical treatment of the problem. The author took into account the earth's deflecting force, but neglected the inertia and solved the equation of motion for the land and sea breezes. *Subject Headings:* **Special winds, Land and sea breeze theory.**

1940

2G–242 551.555.8(62)

§El-Fandy, M. G., **The formation of depression of the Khamsin type.** *Royal Meteorological Society, Quarterly Journal*, 66(286):323–335, July **1940.** 15 figs., 5 tables, 7 refs. **DWB**—Investigation of the conditions in spring which produce khamsin phenomena in Egypt. Air pressure distribution and upper winds were analyzed. *Subject Headings:* **Special winds, Khamsin, Egypt.**

2G–243 551.555.3(4)

Externbrink, H., **Lenticularis-Wolken und lokale Discontinuitätsflächen.** [Lenticular clouds and local surfaces of discontinuity.] *Meteorologische Zeitschrift*, 57(2):55–61, Feb. **1940.** 5 figs., 10 refs. **DWB**—Aerological flights proved that "lenticularis" form on the local surfaces of discontinuity. Turbulence is an important factor for development of "duplicate clouds." Schematic cross sections showing wind conditions and temperature distribution are presented. *Subject Headings:* **Special winds, Föhn winds, Alps.**

2G–244 551.555.3(4)

Flohn, Hermann, **Singularitäten des freien Föhns, ein Beitrag zur modernen Klimakunde.** [Singularities of the free föhn, a contribution to modern climatology.] *Meteorologische Zeitschrift*, 57(4):134–140, April **1940.** 2 figs., 15 refs. **DWB**—General discussion of the classic and modern methods of climatology precedes an analysis of free föhn singularities as observed at some mountain stations. The decrease of relative humidity under 60 percent was taken as an indicator of free föhn phenomena. Data used from 1901 to 1936. The free föhn proved to be a good indicator of the stable, deep, high pressure areas occurring usually in the western quadrant or in the core of a stationary depression. *Subject Headings:* **Special winds, Free föhn, Alps.**

2G–245 551.555.3

Jordan, P., **Über die Ursache der Föhnkrankheit.** [The cause of föhn sickness.] *Naturwissenschaften*, 28(39):630–631, Sept. **1940.** 2 refs. **DLC**—Brief discussion of chief causes of physiological effect of föhn in which the theory of rapid air pressure changes as the most probable source of influence is outlined. *Subject Headings:* **Special winds, Föhn sickness.**

2G–246 551.555.3(497.1)

Küttner, Joachim, **Der Kosava in Serbien. Aerologische Studie im Segelflugzeug über Bora und Föhn.** [The Kosava in Serbia. Aerological study of bora and föhn made in a glider.] *Meteorologische Zeitschrift*, 57(3):120–122, March **1940.** 6 figs., table, 2 refs. **DWB**—Cold descending wind blowing from southeast has been observed in the area where the Danube River breaks through the Carpathian and Balkan Mountains westward to Belgrade. Investigation made in a glider and by means of no lift balloons showed the phenomena of lee waves behind the Kula mountain (400–600 m.). *Subject Headings:* **Special winds, Föhn winds, Košava winds, Yugoslavia.**

2G–247 551.555.3

Kuznetsov, N. N., **K teorii fena.** [On föhn theory.] *Meteorologiia i Gidrologiia*, 6(11):30–43, Nov. **1940.** 68 refs. **DLC**—Comprehensive, historical review of the development of föhn theory and a discussion of the author's own ideas. Geographical distribution of föhn is also considered and discussed. *Subject Headings:* **Special winds, Föhn theory.**

2G–248 551.555.3(479)

Kuznetsov, N. N., **Tipy fenov na Zapadnom Kavkaze.** [Föhn types in West Caucasus.] *Meteorologiia i Gidrologiia*, 6(12):19–32, Dec. **1940.** 6 figs., 4 tables, 7 refs. German summary

p. 32. **DLC**—Synoptic conditions of the origin of föhn in West Caucasus and weather characteristics are investigated. Variations of equivalent-potential temperature for different locations are graphically presented. An attempt is made to prove the author's new idea that the föhn phenomenon is not only a local one but depends also on large scale atmospheric processes, especially on the passage of fronts and air masses during cyclonic activity. In conclusion, the author suggested a classification of föhn winds. *Subject Headings:* **Special winds, Föhn theory, Caucasus, U.S.S.R.**

2G–249 551.555.9

Lyra, G., **Über den Einfluss von Bodenerhebungen auf die Strömung einer stabil geschichteten Atmosphäre.** [The effect of ground elevations on the current of a stable stratified atmosphere.] *Beiträge zur Physik der freien Atmosphäre*, 26(4):198–206, **1940.** 5 figs., 4 refs. 23 equations. **DWB**—A theory of "lee side up wind waves" is presented with formulas for the up wind field. Computed wave lengths and the velocity of up wind are verified by the observational data. Theoretical explanation for Maozagotl wind and Maozagotl cloud is included. *Subject Headings:* **Special winds, Maozagotl wind.**

2G–250 551.555.3(4)

Schmauss, A., **Unsere Beziehungen zum Föhn.** [Our relations to föhn.] *Zeitschrift für angewandte Meteorologie*, 57(4):114–121, April **1940. DWB**—An outline of föhn effect on different objects, and especially on the human organism. States various reactions of normal and sick people to weather conditions associated with föhn phenomena. *Subject Headings:* **Special winds, Föhn winds, Föhn effects, Alps.**

1941

2G–251 551.555.3:551.553.1

Haurwitz, Bernard, **Dynamic meteorology.** 1st ed. New York, McGraw-Hill, **1941.** 365 p. 89 figs., tables, refs. equations. **DWB**—On p. 49–57, föhn processes are theoretically explained. On p. 144, a brief presentation of the dynamics of land and sea breezes and mountain and valley winds is given. *Subject Headings:* **Special winds, Föhn theory, Land and sea breeze theory, Mountain and valley wind theory.**

2G–252 551.555.3(548.7)

Jameson, H., **The Batticaloa Kachchan.** *Royal Meteorological Society, Quarterly Journal*, 67(288):55–56, **1941. DWB**—Brief description of the local föhn-like wind "Kachchan," which blows during the south-west monsoon season on the lee side of Ceylon hills. *Subject Headings:* **Special winds, Föhn winds, Batticaloa, Ceylon.**

2G–253 551.555.3:551.586

Regener, E., **Zur Erklärung der physiologischen Wirkung des Föhns.** [Explanation of the physiological effect of föhn.] *Naturwissenschaften*, 29(2):30–31, Jan. 10, **1941.** 2 tables, 8 refs. **DLC**—Physiological effect of föhn is discussed and suggestions are made for investigating the effect of rapid decrease of vapor in the atmosphere, and decrease of percentage content of the oxygen and its partial pressure, as the possible factors of bad influence. *Subject Headings:* **Special winds, Föhn sickness.**

2G–254 551.555.3(436)

Windischbauer, H., **Die Ausbreitung des Südföhns in den Ostalpen.** [The extension of southerly föhns in the East Alps.] *Meteorologische Zeitschrift*, 58(1):23–30, Jan. **1941.** 2 figs., 11 tables, 5 refs. **DLC**—Dependence of föhn on orographic conditions is explained and the question of existence of a föhn free area in the upper and lower Danube basin is discussed. *Subject Headings:* **Special winds, Föhn winds, Bavaria, Austria.**

1942

2G–255 551.555.3(4):551.594.1

Dorno, C., **Zum Föhnproblem.** [On the föhn problem.] *Meteorologische Zeitschrift*, 59(6):205, June **1942. DLC**—Electrical phenomena in the atmosphere during föhn are briefly discussed. Attendant ionization and high conductivity of air is determined, and its effect on sensitive electrostatic instruments, as well as on the state of the human organism, is noted. *Subject Headings:* **Special winds, Föhn effects, Alps.**

2G–256 551.555.3(4)

Flohn, Hermann, **Häufigkeit, Andauer und Eigenschaften des "freien Föhns" auf deutschen Bergstationen.** [Frequency, duration and nature of the "free föhn" at German mountain stations.] *Beiträge zur Physik der freien Atmosphäre*, 27:110–124, **1942.** 8 figs., 5 tables, 12 refs. **DWB**—

n the basis of observations at mountain stations the free föhn phenomena were analyzed and their equency and distribution in time and space presented. The longest period reached 18 days. ow relative humidity served as indicator. *Subject Headings:* **Special winds, Free föhn, Alps.**

2G–257 551.555.3(36)

Hoinkes, Herfried, **Wolkenbeobachtungen bei Föhn in Innsbruck.** [Observations of clouds uring föhn in Innsbruck.] *Beiträge zur Physyk der freien Atmosphäre*, 27:62–68, **1942.** 8 figs., refs. **DWB**—Using all observations available in this region, the author drew a scheme of stream nes of S-föhn over the Inn Valley. Observations of föhn lenticularis were made and considered close relation to the results obtained by EXTERNBRINK from the study of local surface of dis- ontinuity with a wind jump emerging in lee of a mountain ridge. *Subject Headings:* **Special winds, öhn winds, Innsbruck, Austria.**

2G–258 551.555.3(4)

Krug-Pielsticker, Ursel, **Beobachtungen der hohen Föhnwelle an den Ostalpen.** [Observations the high föhn wave in the East Alps.] *Beiträge zur Physik der freien Atmosphäre*, 27:140–164, 942. 28 figs., 19 refs. **DWB**—Investigation made on basis of data obtained by flights from the orthern edge of the Alps into the Hohen Tauern region. Conditions in East Alps during S-föhn ith high föhn wave are described and compared with computations of streams made by G. LYRA. *ubject Headings:* **Special winds, Föhn winds, Alps.**

2G–259 551.555.3(4)

Reichel, E., **Alois Gregor, "Von der günstigen klimatischen Frühling- und Herbstzeit im öhngebiet."** [Alois Gregor, "On the favorable climatic spring and autumn times in the föhn rea."] *Meteorologische Zeitschrift*, 59(2):70, Feb. **1942. DLC**—Brief discussion on the concept the "layers" of the atmosphere, and some remarks on the presentation of material. *Subject leadings:* **Special winds, Föhn winds, Moravia.**

2G–260 551.553.12(4)

Prügel, H., **Der "Mitternachtswind" auf den oberbayerischen Seen.** [The "midnight wind" n the upper Bavarian lakes.] *Meteorologische Zeitschrift*, 59(3):97–98, March **1942.** 2 refs. **DLC**—A local wind over Starnberger and Ammersee lakes beginning soon after midnight, and sually in high pressure weather conditions, is described and identified as a local, orographically ffected phenomenon. *Subject Headings:* **Special winds, Slope winds, Bavaria.**

1943

2G–261 551.555.3

von Ficker, Heinrich and de Rudder, Bernhard, **Föhn und Föhnwirkungen. Der gegen- ärtige Stand der Frage.** [Föhn and föhn effects. The present state of the problem.] (In **roblеme der Bioklimatologie.** Vol. 1. Leipzig, **1943.** 112 p. 23 figs., tables, 96 refs.) **DWB**— xtensive study of föhn and its effect on the human organism. Theoretical explanations and weather onditions of föhn are given. Geographical distribution of föhn winds and their climatic importance described in detail. Special attention is paid to medical problems in relation to föhn disease. everal theories explaining the bad föhn influence are considered and tentative therapeutic treat- ents are suggested. *Subject Headings:* **Special winds, Föhn winds, Föhn theory, Föhn sickness.**

1944

2G–262 551.553.12(4)

Ekhart, E., **Beiträge zur alpinen Meteorologie.** [Contributions to meteorology of the Alps.] *leteorologische Zeitschrift*, 61(7):217–231, July **1944.** 25 figs., 4 tables, 12 refs. **DWB**—Upper wind easurements made in Salzburg Alps gave new knowledge of small currents existing in the valleys. chematic longitudinal cross section presents the valley wind circulation in the Salzach valley. ix characteristic phases of daily wind variations are outlined. Vertical motion and local peculiar- ies, occurring in the narrow valleys, are discussed. *Subject Headings:* **Special winds, Mountain nd valley winds, Alps.**

2G–263 551.555.3

Jagsich, Juan, **El viento Zonda. Sie desarollo sus variantes y caracteristicas.** [The zonda ind. Its development, variations and characteristics.] *Revista Meteorológica*, 3(9):114–129, **1944.** 0 figs., chart, 15 refs. **DWB**—The local wind of Argentina named "Zonda" is studied and described its normal form and in some variations. Several typical cross sections of the local process are resented. This investigation refers particularly to the area between the Andes and Córdoba. *ubject Headings:* **Special winds, Zonda, Andes, Argentina.**

2G–264 551.553.11:551.555.4

Koschmieder, Harald, **Kleinräumige Luftbewegungen.** [Small-scale air motion.] (In **Physik der Atmosphäre.** Vol. 3. Leipzig, Akademische Verlagsantalt, **1944.** 380 p. 251 figs., numerous refs.) **DLC**—This extensive study of air motion introduces a new objective outlook in discussing the values of old and new investigations. The knowledge of the subject is developed in a brilliant way. Föhn, bora and mistral are studied in Pt. 3. Periodic coastal winds in Pt. 6. Pt. 7 deals with mountain and valley winds, analyzing in detail the investigations made by WAGNER. Review in *Meteorologische Zeitschrift*, 61(6):213–215, June 1944. *Subject Headings:* **Special winds, Föhn theory, Land and sea breeze theory, Mountain and valley wind theory.**

2G–265 551.555.4(71)

†**Meteorology of the Canadian Arctic.** Canada, Dept. of Transport, Meteorological Div., **1944.** 85 p. figs., tables, charts, refs. **DWB**—On p. 14 are some remarks on strong local winds which may occur along the coast and may be very severe, but cover only a small area. They are caused by local topography and the temperature differences between land and sea. *Subject Headings:* **Special winds, Canadian Arctic.**

1945

2G–266 551.555.11(75)

Craig, Richard A., Katz, Isadore and Harney, Patrick J., **Sea breeze cross sections from psychrometric measurements.** *American Meteorological Society, Bulletin*, 26(10):405–410, Dec. **1945.** 7 figs. **DWB**—During the summer and fall of 1944 measurements of temperature and moisture were made in the lowest 100 feet over Massachusetts Bay. Schematic cross-sections showing the distribution of these elements during and in the absence of sea breeze circulation are presented. *Subject Headings:* **Special winds, Land and sea breezes, Massachusetts Bay.**

1946

2G–267 551.555.3(436)

Hader, F., **Der Föhn im Raume von Lunz am See am 27. Februar 1947.** [The föhn in the region of Lunz am See on Feb. 27, 1947.] *Geographische Gesellschaft in Wien, Mitteilungen*, 89(7–12):142–143, **1946. DLC**—During a föhn the temperature rose from −22.7° to 8.8°C., or 31.5°C (57°F.) and the humidity dropped to 35%. Table gives 3-hourly meteorological data for Lunz am See for period from 06h. to 21h. (*Same item* as No. 5–63 in May 1950 *Meteorological Abstracts.*) *Subject Headings:* **Special winds, Föhn winds, Austria.**—*M.R.*

2G–268 551.553.11

Hayes, G. L., **Sea breezes and forest fires.** *American Meteorological Society, Bulletin*, 27(9):539, Nov. **1946. DLC**—A brief note outlining the importance of prediction of time, frontal characteristics, direction and other elements of sea breezes for forest fire control. *Subject Headings:* **Special winds, Land and sea breezes, Long Island.**

2G–269 551.555(497.2)

Kassner, Carl, **Ueber Windnamen an der bulgarischen Schwarzmeerküste.** [Names of winds on the Bulgarian coast of the Black Sea.] *Zeitschrift für Meteorologie*, 1(1):25–26, Oct. **1946. DWB**—Local names of several winds are given with some description but neither references to their origin nor theoretical explanations are included. The principal ones are: Meltém, Lódos, Qarajel, Ostria. *Subject Headings:* **Special winds, Bulgaria.**

2G–270 551.555.4(44)

Morineau, R., **Les arrêts nocturnes du mistral à Marignane.** [Nocturnal cessation of the mistral in Marignane.] *La Météorologie*, p. 413–418, Oct.–Dec. **1946.** 4 figs. **DWB**—A peculiar abnormality of mistral wind in Marignane is described and explained by local circumstances. *Subject Headings:* **Special winds, Mistral, Marignane, France.**

1947

2G–271 551.553.11

Beers, Norman R., **Sea-breeze circulation.** *Journal of Meteorology*, 4–(2):74, April **1947. MH-BH**—The author noticed an error in HAURWITZ's "Comments on the sea breeze circulation" (*see item* 2G–273) and gives a brief explanation of this case. *Subject Headings:* **Special winds, Land and sea breeze theory.**

2G–272 551.553.12(6)

Harker, J. A., **The Berg wind of the southern coast of South Africa.** *South African Geographical Journal*, Vol 29, April **1947.** 15 p. Reprint available. **DWB**—Discussion of a local phenomenon, a

very hot and gusty wind, with some explanations of its chief causes. *Subject Headings:* **Special winds, Berg winds, Mountain and valley winds, South Africa.**

2G–273 551.553.11

Haurwitz, B., **Comments on the sea-breeze circulation.** *Journal of Meteorology*, 4(1):1–8, Feb. **1947.** 8 figs., 4 refs., 21 equations. **DLC**—Indicates factors which may be important for development of the theory of sea breezes. Friction and deflecting force of the earth's rotation are the specific factors discussed. Diurnal rotation of sea breeze is explained as an effect of the coriolis force. The comparison of the theory with observations of diurnal variations of sea breeze direction showed a reasonably good agreement. *Subject Headings:* **Special winds, Land and sea breeze theory.**

2G–274 551.553.12(6)

Jackson, S. P., **Ajr masses and the circulation over the plateau and coast of South Africa.** *South African Geographical Journal*, 29:1–15, April **1947.** 8 figs., 10 refs. **DWB**—General movements of the air are discussed and the main features of prevailing currents and their effects on the temperature and weather conditions outlined. The föhn-like Berg wind has been considered also. *Subject Headings:* **Special winds, Berg winds, Mountain and valley winds, South Africa.**

2G–275 551.553.11(79)

Leopold, Luna B., and Beer, Charles G. P., **The coastal sea breeze in relation to diurnal temperature changes in the lower atmosphere (Southern California).** *American Meteorological Society, Bulletin*, 28(8):371–380, Oct. **1947.** 5 figs., 4 refs. **DWB**—Observations of diurnal variation of temperature were made at constant levels in the lower atmosphere in the Los Angeles basin area. A significant difference of temperature has been observed between flights at 0800 and 1600 PWT. Phase difference was found between the layer below 4000 feet and the higher levels. *Subject Headings:* **Special winds, Land and sea breezes, Aerological studies, Los Angeles.**

2G–276 551.555.3

Prohaska, F., **Neuere Anschauungen über die Meteorologie und Klimatologie des Föhns.** [Recent views on the meteorology and climatology of föhns.] *Experientia*, Basel, 3(6):232–237, **1947.** 3 figs., 9 refs. English summary p. 237. **DLC**—The latest theories regarding the origin, development and climatological significance of two kinds of föhn winds (cyclonic and anticyclonic or "free föhn") are discussed and schematically illustrated. VON FICKER's ideas are given precedence. (*Same abstract* as No. 8–80 in Aug. 1950 *Meteorological Abstracts.*) *Subject Headings:* **Special winds, Föhn winds, Alps.**—*M.R.*

2G–277 551.553.11

Schmidt, F. H., **An elementary theory of the land- and sea-breeze circulation.** *Journal of Meteorology*, 4(1):9–15, Feb. **1947.** 5 figs., 12 refs., 3 equations. **MH-BH**—An elementary solution of the problem is given without taking into consideration the mutual influence of temperature distribution and velocity. The breezes of equatorial regions and in temperate latitudes are treated separately. The compressibility of the air has been taken into account. *Subject Headings:* **Special winds, Land and sea breeze theory.**

1948

2G–278 551.555.3(497)

Astapenko, P. D., **IAvlenia fena na Balkanakh.** [Föhn phenomena in the Balkans.] *Voprosy Geografii, Sbornik* No. 7, *Klimatologiia i Gidrologiia*, **1948.** p. 151–157. 3 figs., 2 tables, 8 refs. **DLC**—An outline of KÜTTNER's theory and description of föhn phenomena in Cherni Verkh Mountains. Some numerical characteristics of meteorological elements observed during föhn are presented. *Subject Headings:* **Special winds, Föhn winds, Föhn theory, Balkans.**

2G–279 551.555

Becker, Richard, **Die Winde der Erde mit Eigennamen. Mit einem alphabetischen Register.** [The winds of the earth with their local names. With alphabetical index.] *Wetter und Klima*, 1(11–12):358–371, Nov.–Dec. **1948.** 5 refs. **DWB**—All winds having local names are listed in alphabetical order with explanatory remarks. *Subject Heading:* **Special winds.**

2G–280 551.555.3(431/5)

Flohn, Hermann, **Stau-und Föhnerscheinungen im Heilbronner Becken.** [Upslope and föhn phenomena in the Heilbronn Basin.] *Meteorologische Rundschau*, 1(11–12):345–346, May–June **1948.** 9 refs. **DWB**—Description of orographic effects on air-flow precipitation and cloudiness in the Heilbronn Basin of the Neckar near Stuttgart (between the Odenwald and Black Forest). In-

teresting instances are cited, from the point of view of a careful observer and aerologist. (*Same abstract* as No. 2–130 in Feb. 1950 *Meteorological Abstracts*.) *Subject Headings:* **Föhn winds, Germany.**—*M.R.*

2G–281 551.555.4

Küttner, Joachim, **Borawellen. (Die Bedeutung der französischen Wellengeflüge.)** [Bora waves. (The importance of the French wave glider flights.)] *Wetter und Klima*, 1(9–10):277–288, Sept.–Oct. **1948.** 10 refs., 2 equations. **DWB**—Theoretical discussion of the lee wave problem, reviewing the explanations given by Lyra, Marceau, Möller and others. *Subject Headings:* **Special winds, Bora.**

2G–282 551.553.12

Scherhag, Richard, **Eine neue Theorie des Berg-und Talwindes mit Anwendung auf den Mechanismus der Fronten.** [New theory of the mountain and valley winds with application to the mechanism of fronts.] *Meteorologische Rundschau*, 1(7–8):220–222, Jan.–Feb. **1948.** 3 figs., 4 refs. English summary p. 220. **DWB**—The periodic and constant mountain winds are considered as resulting from the slope of the landscape. The difference in development of the mountain and valley winds and the land and sea breezes is analyzed. *Subject Headings:* **Special winds, Mountain and valley wind theory.**

1949

2G–283 551.555.4:551.553.11(262)

An der Lan, Hannes, **Meteorologische Besonderheiten der Ägäis.** [Meteorological peculiarities of the Aegean.] *Archiv für Meteorologie, Geophysik und Bioklimatologie, Ser. B*, 1(3–4):388–409, **1949.** 4 figs., 7 refs. German, English and French summaries p. 388–389. **DWB, MH-BH**—Discusses the local katabatic winds ("white gusts") of the Greek and Turkish Coasts, including the "Vardar." The synoptic situations associated with them are discussed (not illustrated), especially the regeneration of the winter depressions over Aegean. Finally the well developed land- and sea-breezes of the Gulf of Athens are described. (*Same item* as No. 4–99 in April 1950 *Meteorological Abstracts*.) *Subject Headings:* **Vardar, Land and sea breezes, Greece, Turkey, Aegean Sea.**—*C.E.P.B.*

2G–284 551.553.12

†§*Defant, Friedrich, **Zur Theorie der Hangwinde, nebst Bemerkungen zur Theorie der Berg- und Talwinde.** [On the theory of slope winds, with remarks on the theory of mountain and valley winds.] *Archiv für Meteorologie, Geophysik und Bioklimatologie, Ser. A*, 1(3–4):421–450, **1949** 15 figs., 5 tables, 36 refs., 38 equations. German, English and French summaries p. 421–422. **MH-BH**—An important paper. After A. Wagner (1938) the diurnal variation of winds in a narrow mountain valley with steep sides is shown in eight diagrams. Velocities parallel with slopes show maximum of 3.9 m/sec. at 25–30 m. Mathematical treatment of a steady slope wind by L. Prandtl (**Strömungslehre, 1942**) based on potential temperature is shown to agree with observations in lowest 100 m.; turbulent and laminar flow give the same speeds. Theory is then extended to diurnal variation. Friction on rough and forested slopes is discussed and approximate calculations given of air transport and velocities vertical to slope in mountain and valley winds; results clarify mechanism. (*Same item* as No. 4–94 in April 1950 *Meteorological Abstracts*.) *Subject Headings:* **Mountain and valley wind theory, Slope wind theory.**—*C.E.P.B.*

2G–285 551.555.3(36)

Ekhart, E., **Zum Innsbrucker Föhn.** [On the Innsbruck Föhn.] *Meteorologische Rundschau*, 2(9–10):276–280, Sept.–Oct. **1949.** 4 figs. **DWB**—Author gives diagram of daily duration of föhn in hours each year 1906–1947. Mean 500 hours in 67 days mostly in series; maximum March–April and October. Great secular decrease since 1911. Diagrams constructed from pilot balloon ascents show mean föhn streamlines around Innsbruck at 1, 2, 3 km. above mean sea level. At 1 and 2 km. they pass through and to right of Sil Valley to fan out and weaken in Inn Valley. A vertical section shows descent (20 m./sec. or more) on south slope of Inn Valley, with great vertical divergence above valley floor (föhn wave) extending to high levels. Ascent of northern slope is turbulent. (*Same item as* No. 4–96 in April 1950 *Meteorological Abstracts*.) *Subject Headings:* **Föhn theory, Föhn statistics, Innsbruck, Austria.**—*C.E.P.B.*

2G–286 551.555.4(46)

Fontserè, Eduard, **La tramontane et la mestral de la Côte Catalane.** [The tramontana and mistral of the Catalonian Coast.] *Archiv für Meteorologie, Geophysik und Bioklimatologie, Ser. B*, 1(2):127–127, **1949.** 7 figs., 10 refs. French, English and German summaries p. 127–128. **DWB, MH-BH**—A general study of the tramontana which descends the Alberes Mountains in northeast

Catalonia as a squally NNW wind and the cold dry mistral of the Ebro Valley. (*Same item* as No. 4–97 in April 1950 *Meteorological Abstracts.*) *Subject Headings:* **Tramontana, Mistral, Spain.**—*M.R.*

2G–287 551.553.12:551.555.4(262)

Koch, H. G., **Ein lokaler Tagesfallwind in Mittelsardinien.** [A local descending wind in Middle Sardinia.] *Leipzig, Universität, Geophysikalisches Institut, Veröffentlichungen*, Ser. 2, 15:40–60, **1949.** 4 figs., 5 refs. German summary p. 60. **DWB**—Descriptive treatment and analysis of local winds in the Tirso basin outlining a special kind of local descending wind, which appears in late afternoon and lasts till sunset having some bora properties. Pilot balloon observations were made. *Subject Headings:* **Special winds, Mountain and valley winds, Bora, Sardinia.**

2G–288 551.553.11(73.9)

Leopold, Luna B., **The interaction of the trade wind and sea breeze, Hawaii.** *Journal of Meteorology*, 6(5):312–320, Oct. **1949.** 9 figs., table, 6 refs. **DWB**—Pilot balloon observations and local surface pressure gradient measurements provided basis for construction of schemes of vertical and horizontal air circulation set up by the interaction of trade wind and sea breeze. Four different types of this process are described. Influences on local microclimate outlined. (*Same item* as No. 2–127 in Feb. 1950 *Meteorological Abstracts.*) *Subject Headings:* **Special winds, Land and sea breezes, Hawaiian Islands.**

2G–289 551.555.4 551.555.8 551.553.12

†*Rauh, Werner, **Klimatologie und Vegetationsverhältnisse der Athos-Halbinsel und der Ostägäischen Insel Lemnos, Evstratios, Mytaline und Chios.** [Climatology and vegetative conditions on the Athos peninsula and the islands of Lemnos, Evstratios, Mytilene and Chios in the Aegean Sea.] *Heidelberger Akademie der Wissenschaften, Math.-naturwis. Klasse, Sitzungsberichte*, No. 12, **1949.** 30 figs., 12 tables, refs. **DLC**—After a dozen pages of introductory matter on the climate and geography of Greece and neighbouring islands, a chapter on climatology (p. 13–32) contains detailed data on surface winds and less detailed material on temperature and rainfall. Tables and wind-roses showing the direction, force and frequency of winds at 08,14 and 19h, are presented for six stations. Special winds such as the vardar, the Athens-Fallwind, the Struma-Fallwind and the Dardanelle Düsenwind are described and their nature and the area affected shown on original charts. The study is based on original research done by author in 1942, using in addition data for the period 1936–1942. (*Same item* as No. 10–155 in Oct. 1950 *Meteorological Abstracts.*) *Subject Headings:* **Special winds, Vardar, Sirocco, Greece, Aegean Sea.**—*M.R.*

2G–290 551.555.8(62)

Sayed, Ahmed M. M., **Khamsin and Khamsin conditions.** *Egypt, Ministry of War and Marine, Meteorological Dept. Paper* No. 1, Cairo, **1949.** 57 p. 11 figs., 15 tables. **DWB**—Extensive investigation of khamsin depressions and meteorological conditions in Egypt, based on observations from 1923 to 1942. Classification of these depressions is made and the frequency of each type determined. Khamsin air masses analyzed. *Subject Headings:* **Special winds, Khamsin, Egypt.**

1950

2G–291 551.553.12(79)

Cross, C. M., **Slope and valley winds in the Columbia River Valley.** *American Meteorological Society, Bulletin*, 31(3):79–84, March, **1950.** 3 figs., 6 refs. **DWB, MH-BH**—Analysis of wind records made during 1938–1940 in the Columbia River Valley near Trail, British Columbia, to determine the diurnal wind patterns. By using two stations, one in the main valley and one in a side valley, the valley winds and slope winds could be studied and the results compared with those from similar studies made in the Alps. The most pronounced patterns occurred on sunny days in summer when the gradient winds were weak. (*Same item* as 5–62 in June 1950 *Meteorological Abstracts.*) *Subject Headings:* **Special winds, Mountain and valley winds, Slope winds, British Columbia.**—*M.R.*

2G–292 551.555.3(44)

§Dallant, M., **Un effet de foen remarquable à Menton, le 7 avril 1949.** [Remarkable föhn effect in Menton on April 7, 1949.] *La Météorologie*, 4th Ser., No. 17:39–41, Jan.–March, **1950.** 2 maps. French, English and Spanish summaries p. 39. Fontaine, P., **Essai d'étude, à l'échelle synoptique, du phénomene décrit ci-dessus.** [A synoptic study of the phenomenon described above.] *Ibid.*, p. 41–45. 5 charts, ref. **DWB, MH-BH**—Analyzed surface synoptic charts for 6 and 7 April 1949 show situation (northwest type) which produced a marked föhn in the Rhone Valley. Note by P. Fontaine shows more analyzed charts and upper air flow for same period and another set for April 26, 1949 (northerly type) which, though superficially the same as the former, resulted

in cloudiness and thunderstorms in the Rhone Valley rather than in föhn conditions. (*Same item* as No. 11–105 in Nov. 1950 *Meteorological Abstracts.*) *Subject Headings:* **Special winds, Föhn winds, Föhn effects, Rhone Valley, France.**—*M.R.*

2G–293 551.553.11

Defant, F., **Theorie der Land und Seewinde.** [Theory of land and sea breezes.] *Archiv für Meteorologie, Geophysik und Bioklimatologie, Ser. A,* 2(4):404–425, **1950.** 7 figs., 4 tables, 12 refs., 26 equations. German, English and French summaries p. 404. **DWB**—Land and sea breezes are the simplest form of circulation in a vertical plane. Previous theories are briefly summarized. A detailed mathematical analysis of the circulation is given, taking account of friction, deflective force of rotation and horizontal and vertical heat transport on the basis of RAYLEIGH's convection theory. This leads to an equation involving complex functions of constants such as vertical temperature gradient, "extension coefficient," turbulent conductivity, friction and wave length of the circulation cell. Values of these constants are given and the magnitudes of the functions calculated. The amplitude and phase of the wind components normal and parallel to the coast and vertical, and of the variation of potential temperature up to 2000 meters are calculated under various assumptions, leading to a theoretical table and vector diagram of the diurnal variation of wind across a coast. This is compared with observed hourly vectors at Hook of Holland and Logan Airport and good agreement found. (*Same item* as No. 2.2–100 in Feb. 1951 *Meteorological Abstracts.*) *Subject Headings:* **Special winds, Land and sea breeze theory.**—*C.E.P.B.*

2G–294 551.553.12

Fleagle, Robert G., **A theory of air drainage.** *Journal of Meteorology,* 7(3):227–232, June **1950.** 4 figs., 15 refs., 26 equations. **DWB, MH-BH**—A theory of radiatively produced slope winds, first advanced by JEFFREYS and developed by PRANDTL and DEFANT is investigated. The conclusion is that the maximum possible drainage velocity is directly proportional to the cotangent of the elevation angle—not the cosine as PRANDTL deduced. (*Same item* as No. 8–78 in Aug. 1950 *Meteorological Abstracts.*) *Subject Headings:* **Special winds, Land and sea breeze theory.**—*M.R.*

2G–295 551.555.3 551.555.4(46)

Fontserè, Eduard, **La tramuntana empordanesa i el mestral del golf de Sant Jordo.** [The tramontana and mistral of the Gulf of Saint Jordo.] Genève, Institució Patxot de Catalonya, **1950.** 83 p. 20 figs., 8 photos, refs. In Catalonian. **DWB**—An extensive study of the tramontana in its ideal form and of the local variations. Conditions peculiar to Catalonian Coast of Spain as influenced by orographic effect of the Pyrenees. The mechanism of this wind and associated meteorological conditions on surface and aloft are discussed. Geographical distribution, seasonal frequency and duration are considered in detail and illustrated by charts and schematic diagrams. The mistral is treated separately and in similar form. Excellent cloud photographs. *Subject Headings:* **Special winds, Tramontana, Mistral, Catalonian Coast, Spain.**

2G–296 551.553.12:551.555.9

†Geiger, Rudolf, **The climate near the ground.** 2nd ed., rev. and enl. Cambridge, Harvard University Press, **1950.** 482 p. 181 figs., 63 tables, 821 +refs. "A translation by Milroy N. Stewart and others of . . . **Das Klima der bodennahen Luftschicht.**" **MH-BH**—Textbook for university students with ample bibliography. Chap. 20 deals with valley winds, slope winds and glacier winds, which are explained in details and shown on conspicuous cross section schemes. *Subject Headings:* **Special winds, Mountain and valley winds, Slope winds, Glacier winds.**

2G–297 551.553.11

Haurwitz, B., **Particle dynamics and the sea breeze.** *Journal of Meteorology,* 7(2):164–165, April **1950.** 5 refs. **DWB**—A brief note discussing the importance of the action of friction and coriolis force on sea breeze circulation. Conclusion emphasized the strict limitations of an application of particle dynamics to atmospheric motions. *Subject Headings:* **Special winds, Land and sea breeze theory.**

2G–298 551.555.3(4)

§*Hoikens, H., **Föhnentwicklung durch Höhentiefdruckgebiete.** [Föhn development in an upper low-pressure area.] *Archiv für Meteorologie, Geophysik und Bioklimatologie, Ser. A,* 2(1):82–96, **1950.** 8 figs., 7 tables, 6 refs. German, English and French summaries p. 82–83. **DWB, MH-BH**—A detailed synoptic-aerological analysis of an unusual föhn situation which occurred in the northern Alps (near Innsbruck and Sonnblick) on October 2–4, 1941. As high pressure lay to the northeast and low to the southwest on the surface charts, no föhn would have been expected, but the upper air charts showed warm, light air to the north and cold, dense air to the south of the Alps.

Surface wind and temperature records and winds aloft for a number of stations are reproduced to illustrate the contention that the pressure difference was caused by cooling (due to cloud and precipitation) on the one hand and warming (due to sunshine and descent of the slopes) on the other. (*Same item* as No. 8–79 in Aug. 1950 *Meteorological Abstracts*.) *Subject Headings:* **Special winds, Föhn theory, Aerological studies, Alps.**—*M.R.*

2G–299 551.553.11:551.553.12:551.555.8

§Koch, H. G., **Über Winde und Wetterlagen in Südsardinien.** [On winds and weather conditions in south Sardinia.] (In his **Meteorologische Studien im Mittelmeer.** *Germany, Meteorologischer Dienst der Deutschen Demokratischen Republik, Abhandlungen*, No. 1:41–66, **1950.** 7 figs., numerous tables, 3 refs.) **DWB**—The study consists of a detailed analysis of synoptic conditions, upper air and surface winds and weather; demonstrating how the land-sea breeze circulation, reinforced by mountain-valley winds, increases the amount of precipitation and produces a secondary maximum of thunderstorms and showers in the latter part of the night. Sirocco winds and northwest gales in the Straits of Sardinia are treated from a synoptic point of view. (*Same item* as No. 10–100 in Oct. 1950 *Meteorological Abstracts*.) *Subject Headings:* **Special winds, Land and sea breezes, Mountain and valley winds, Sirocco, Sardinia.**—*M.R.*

2G–300 551.555.3(99)

Loewe, F., **Foehn effect near the Balleny Islands, Antarctica.** *Weather*, 5(4):152–154, April **1950.** 2 photos. **DWB, MH-BH**—Description of "Fall clouds" in lee of islands, föhn gaps in clouds and wave motion forming bars of cloud and clear lanes parallel to length of islands. (*Same item* as No. 5–64 in May 1950 *Meteorological Abstracts*.) *Subject Headings:* **Special winds, Föhn effects, Balleny Islands, Antarctic.**

2G–301 551.555.3(431/5)

Malsch, Wolfgang, Bartsch, Joachim and Killermann, Englbert, **Beobachtungen von stehenden Wellen (Föhn?) in Rheintal.** [Observations of standing waves (föhn?) in the Rhine Valley.] *Meteorologische Rundschau*, 3(5–6):134–135, May–June **1950.** 3 tables. **DWB, MH-BH**—On May 2, 1949 waves were observed in st.-cu. at Karlsruhe. Pilot balloons showed alternating up and down currents. Explanation not clear. (*Same item* as No. 8–81 in Aug. 1950 *Meteorological Abstracts*.) *Subject Headings:* **Special winds, Föhn effects, Rhine Valley, Germany.**—*C.E.P.B.*

2G–302 551.553.11(42)

Marshall, W. A. L., **Sea breeze across London.** *Meteorological Magazine*, London, 79(936):165–168, **1950.** 2 figs., 3 tables, ref. **DWB**—On July 1, 1949 in very hot spell, wind in central London at 1605 G.M.T. changed from light NE to moderate E with fall of temperature and considerable increase of humidity. By means of autographic records onset of sea breeze was traced to Abingdon, 60 miles west of London; isochrones are given. (*Same item* as No. 8–77 in Aug. 1950 *Meteorological Abstracts*.) *Subject Headings:* **Special winds, Land and sea breezes, London, England.**—*M.R.*

2G–303 551.555.3

Rossmann, Fritz, **Über das Absteigen des Föhns in die Täler.** [On the descent of the föhn into the valleys.] *Germany, Deutscher Wetterdienst in der U.S. Zone, Berichte*, No. 12:94–98, **1950.** 2 cloud photos, 3 refs., equations. **MH-BH**—The dynamic theories of the descent of warm föhn air into valleys present difficulties. The "föhn wall" is always more or less developed and author produces data to show that descending föhn is due to moist-labile sinking of air in clouds of föhn wall. Peculiarities of föhn discussed, including abnormal visibility. (*Same item* as No. 9–103 in Sept. 1950 *Meteorological Abstracts*.) *Subject Headings:* **Special winds, Föhn theory.**—*C.E.P.B.*

2G–304 551.555.3

Rossmann, Fritz, **Über den Föhn auf Spitzbergen und Grönland.** [On the föhn in Spitsbergen and Greenland.] *Zeitschrift für Meteorologie*, 4(9):257–262, Sept. **1950.** table, 12 refs. Also *Polarforschung* II, 20(1–2):347–353, 1950. **MH-BH**—Föhn is attributed to an air current descending from föhn-wall cloud cooled by evaporation of scattered droplets. The so-called föhn of Spitsbergen, shown by kite ascents to be only a few hundred meters deep, warms adiabatically and is not a true föhn. It is a local wind blowing off north slopes in Sept.–May; sea breezes prevail on S. slopes in summer. In Greenland, valley föhn often occurs on the steep slopes of the inland ice, with moist adiabatic warming due to drift snow blown off the inland ice. (*Same abstract* as No. 2.6–85 in June 1951 *Meteorological Abstracts*.) *Subject Headings:* **Special winds, Föhn winds, Spitsbergen, Greenland.**—*C.E.P.B.*

2G–305 551.555.4

Schramm, Anton, **Der "Böhmische Wind" im Bereich des Oberpfälzer Waldes und des Böhmerwaldes.** [The "Böhmer wind" in the region of the Oberpfalzer Forest and Bohemian Forest.] *Deutscher Wetterdienst in der U.S. Zone, Berichte*, No. 12:136–137, **1950. MH-BH**—The cold, dry katabatic wind is described, the synoptic conditions for its formation briefly set out and its regional and seasonal distribution given. (*Same item* as No. 9–104 in Sept. 1950 *Meteorological Abstracts.*) *Subject Headings:* **Special winds, Bavaria, Germany.**—*C.E.P.B.*

2G–306 551.555.3(431/5)

Stranz, D., **Ein Beispiel "freien Föhns" im Flachland.** [An example of "free föhn" in the low lands.] *Zeitschrift für Meteorologie*, 4(4–5):149–151, **1950.** Reprint available. **DLC**—On the night of August 7, 1944, the Collm Observatory noticed a subsidence inversion about 4°C rising temperature and 10–15% decreasing humidity. Aerological data in Berlin showed even more pronounced inversion, which is rare in summer. This phenomenon is explained by the sinking of an obsolete cA air mass in an anticyclonic weather situation. Analysis of meteorological elements in time and space has been made and graphically presented. (*Same item* as No. 11–83 in Nov. 1950 *Meteorological Abstracts.*) *Subject Headings:* **Special winds, Free föhn, Collm Observatory, Germany.**

2G–307 551.555.3

Takeuchi, M., **On H. Wild's hypothesis in the theory of föhn phenomena.** *Papers in Meteorology and Geophysics*, Tokyo, 1(2–4):206–210, Dec. **1950.** 5 figs., 14 refs. **DWB**—Theoretical discussion of the mechanism of suction of the air by föhn stream and the jet föhn. Classification of föhn winds according to the mechanism of descent into the valley is presented. H. WILD's hypothesis is confirmed by the quotations of W. TOLNER's theory of semi-infinite jet stream, and it is shown that this effect predominates when the compensating horizontal flow is interrupted as in a closed valley. The topographical factor is recognized as a decisive one determining whether the effect of an ascending current or that of horizontal divergence must predominate. *Subject Headings:* **Special winds, Föhn theory.**

SUPPLEMENTARY MATERIAL

(*Came to our attention too late for inclusion in proper order*)

2G–308 551.555.3

*§Hoover, O. H., **Effect of chinook (Foehn) winds on snow cover and runoff.** *International Union of Geodesy and Geophysics, International Association of Scientific Hydrology, Transactions*, Oslo 1948, Vol. 2, **1950.** p. 86–100. 4 figs., 5 charts, table. **DWB**—Characteristics and effects of chinook winds are discussed and a concise statement is given on the phenomena and maintenance of these winds. An example of a chinook which occurred in Alberta between March 17 and 24, 1939 is given, with graphs illustrating the effect of this wind on snow cover and runoff. *Subject Headings:* **Special winds, Chinook winds.**—*From author's abstract.*

2G–309 551.555.4(497.1, 459.1)

*Band, Günther, **Die Bora der Adria.** [Bora of the Adriatic.] *Geofisica Pura e Applicata*, 19(3–4):186–219, April–June **1951.** 10 figs., 22 tables, 10 refs., 10 equations. German and English summaries p. 186. **MH-BH**—The Dalmatian coast and the Adriatic region in general are especially subject to the cold, katabatic wind called the "bora." Orographic and air mass characteristics of this region are first discussed; then the attending weather conditions and the duration, seasonal frequency, wind distribution and strength, diurnal and regional variations, effects on temperature, relative humidity, vapor pressure, precipitation, thunderstorms, etc. Composite charts and diagrams show isobars before and after a bora, lapse rates, wind profiles, depth of cold air and other dynamic conditions, useful in analysis and forecasting. *Subject Headings:* **Bora, Yugoslavia, Trieste, Adriatic region.**—*M.R.*

2G–310 551.555.3:551.579(45)

*Bernasconi, di Carlo and Bossolasco, Mario, **Sull'idrologia del foehn.** [Föhn hydrology.] *Geofisica Pura e Applicata*, 19(3–4):179–185, April–June **1951.** 3 tables, 4 refs. Italian, English and German summaries p. 179. **MH-BH**—In the Italian Alps, according to the authors, 11 cases of föhn occurred between 1935 and 1943. Analysis shows that a subsequent decrease in runoff was observed at 2 or more gaging stations in northern Italy in 7 of these cases. The decreased runoff is attributed to the marked increase in evaporation which attends a föhn wind. *Subject Headings:* **Föhn winds, Runoff, Evaporation, Italian Alps.**—*M.R.*

2G–311 551.555.3

Mörikofer, Walter, **Zur Meteorologie und Meteorobiologie des Alpenföhns.** [Meteorology and meteorobiology of the Alpine föhn.] *Schweizerische Naturforschende Gesellschaft, Verhandlungen*, 130:11–32, **1950.** 2 figs., 2 refs. Reprint available. **DLC**—A fundamental treatise on the complex problem of biological effects of the Alpine föhn, and an attempt to find a meteorological explanation. On the basis of an extensive observational program, which has been carried out at Davos Observatory and in four special stations, new details in distribution of föhn processes in space and time have been found, contributing to the development of the föhn theory. Clinical statistics of föhn sickness symptoms have been used in research of its main causing factor. The change of reactions of the vegetative nervous system is believed to be the main effect of föhn on human organisms. *Subject Headings:* **Föhn theory, Föhn sickness, Davos, Swiss Alps.**

PART III. METEOROLOGICAL ARTICLES APPEARING IN RECENTLY ISSUED PUBLICATIONS

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American Meteorological Society, Bulletin, Volume 32, Number 5, May 1951.

Kraght, Peter E.: **On the spread of precipitation areas and forecasting onset time of precipitation,** p. 159.
Scully, E. C.: **Notes on synoptic analysis and forecasting of Mediterranean summer weather,** p. 163.
Thornthwaite, C. W.: **The water balance in tropical climates,** p. 166.
Bryson, Reid A.: **Studies on the weather of the tropical West Pacific by means of the cloudiform stability scale,** p. 174.
Buettner, Konrad: **Radiation effects on man in space,** p. 183.
Phillips, Charles: **Climate and skin cancer,** p. 186.

Annalen der Meteorologie, Medizin-meteorologische Hefte, Number 4, 1950.

Stühmer, A. and Pfister, Rudolf (comps.): **Bericht über die erste Tagung der Freiburger Arbeitsgemeinschaft für bioklimatische Forschung vom 24. bis 26. März 1950 in Freiburg im Breisgau (Kaufhaussaal),** [Report on the first meeting of the Freiburg Working Party for bioclimatic research, 24–26 March 1950 in Freiburg (Chamber of Commerce)], p. 1–53.
de Rudder, B.: **Meteorologie und Krankheitsgeschehen,** [Meteorology and incidence of disease], p. 2–5.
Schulze, R.: **Über "Wetter und Krankheit" vom Standpunkt des Meteorologen,** [On "weather and disease" from the standpoint of the meteorologist], p. 6–10.
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Melzer, E.: **Klimatherapie der Tuberkulose,** [Climatic therapy of tuberculosis], p. 42–46.
von Philipsborn, E.: **Die Indikationen für Klimakuren,** [Symptoms for climatic cures], p. 47–48.
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Journal of Agricultural Meteorology, (Nogyo Kisho, Japan), Volume 5, Number 1, July 1949.

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Journal of Meteorology, Volume 8, Number 3, June 1951.

Swinbank, W. C.: **The measurement of vertical transfer of heat and water vapor by eddies in the lower atmosphere,** p. 135–145.
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Journal Scientifique de la Météorologie, Volume 3, Number 9, January–March 1951.

Kiveliovitch, M. and Roulleau, J.: **Sur l'évolution des gouttes d'eau dans l'atmosphère (suite),** [On the formation of drops of water in the atmosphere, (cont'd)], p. 1–8.
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Marine Observer, Volume 21, Number 153, July 1951.

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Meteorological Magazine, London, Volume 80, Number 946, April 1951.

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Meteorological Society of Japan, Journal, 2nd Serie, Volume 29, Number 1, January 1951.

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Meteorological Society of Japan, Journal, 2nd Series, Volume 29, Number 2, February 1951.

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Yamamoto, G. and Onishi, G.: **Absorption of solar radiation by water vapour in the atmosphere,** p. 103–119.
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Polarforschung, Band II, Jahrgang 20, Number 1–2, 1950.

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